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UNITED STATES DEPARTMENT OF AGRICULTURE

DEPARTMENT BULLETIN No. 1444

Washington, D. C. ▼ December, 1926

COTTON PRICES AND MARKETS

By

ALONZO B. COX, Agricultural Economist
Division of Cotton Marketing, Bureau of Agricultural Economics

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By ALONZO B. COX, *Agricultural Economist, Division of Cotton Marketing, Bureau of Agricultural Economics* [1]

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An understanding of the marketing of cotton involves a knowledge of the demand for cotton, the supply of it, the machinery developed to bring demand and supply into trading relations, and the historical development of these three market factors. This analysis of the fundamental factors involved in cotton price making and this description of the markets in which prices are made is a contribution to that understanding.

DEMAND FOR COTTON

The price of cotton depends upon the intensity of human wants, the supply available, and the purchasing power of those whose wants

[1] Credit is due Florena Cleaves for much assistance in research and in the preparation of the text of this report.

are to be satisfied. The historical development of cotton marketing shows that demand factors took the lead in molding cotton-marketing methods.[2] Much of a given cotton crop is bought long before it is grown. The spinner often contracts for his supplies of the new crop in June and July. The purchase from the farmer is frequently the last transaction in the series through which the spinners obtain their cotton. If the crop turns out much less than anticipated, more cotton may have been sold than is actually grown. Not all cotton is sold on contract before it is delivered by the farmer, especially in the latter part of a season when the outturn is large or larger than expected, but even here much of the cotton is sold for forward delivery before harvest.

Because of this method of doing so large a part of the business on " basis " for forward delivery, this study begins with a brief analysis of demand and supply factors and is followed by a consideration of spinners' markets and of the local market. The growers should be placed in a position to grow a commodity to meet a fairly well-known demand. They should more closely coordinate the volume of their production and the quality of it to the wishes of the market.

USES OF COTTON

Broadly speaking, the uses of cotton may be grouped under three heads: (1) In manufacture of clothing, (2) in industry, and (3) in household furnishings. In the United States the best available data show that approximately 50 per cent of the 6,000,000 bales of 478 pounds net consumed in the mills of the United States in 1919 went into clothing, 34 per cent into industry, and about 16 per cent into articles for household use.

TABLE 1.—*Raw cotton, including linters, consumed by industries in census years, 1904–1919*

Industry	1904	1909	1914	1919
	Pounds	*Pounds*	*Pounds*	*Pounds*
Cotton manufactures	1, 876, 437, 150	2, 335, 344, 906	2, 523, 500, 837	2, 758, 355, 619
Woolen manufactures:				
Woolen goods	28, 279, 832	15, 801, 394	23, 915, 496	14, 629, 920
Worsted goods	4, 333, 576	4, 222, 667	4, 471, 526	2, 745, 483
Carpets and rugs	1, 997, 369	5, 147, 130	3, 802, 789	3, 864, 826
Felt goods	1, 982, 624	1, 375, 670	3, 117, 272	1, 442, 406
Total	36, 593, 401	26, 546, 861	35, 307, 083	22, 682, 635
Knit goods	50, 586, 760	75, 416, 023	88, 390, 208	93, 050, 318
Cordage and twine, jute goods and linen goods	18, 142, 735	27, 624, 490	32, 336, 685	31, 685, 111
Wool shoddy	44, 400	293, 292	399, 965	6, 000
Total	1, 981, 804, 446	2, 465, 225, 572	2, 679, 934, 778	2, 905, 779, 683

Rearranged from Fourteenth Census of the United States, Manufactures, Vol. X, p. 150.

[2] See mimeographed report, Evolution of Cotton Marketing, by Alonzo B. Cox.

TABLE 2.—*Raw cotton, including linters, consumed in the United States, by census classification of industries and by specified uses of product, 1919*

[Thousand—i. e., 000 omitted]

Industry	Consumption			
	Distributed to—			Total
	Clothing	Industry	Household uses	
Cotton manufactures:	*Pounds*	*Pounds*	*Pounds*	*Pounds*
Cotton goods	1,323,279	946,615	483,495	2,753,389
Cotton small wares	4,967			4,967
Cotton lace	(1)	(1)	(1)	(1)
Total	1,328,246	946,615	483,495	2,758,356
Wool manufactures	22,683			22,683
Knit goods	93,050			93,050
Silk manufactures	(2)	(2)	(2)	(2)
Cordage and twine, jute goods, and linen goods		31,685		31,685
Wool shoddy	6			6
Total	1,443,985	978,300	483,495	2,905,780

Compiled from Fourteenth Census of the United States, Manufactures, Vol. X, p. 150. Distribution has been made on the basis of statistics shown in Table 19, p. 171, of the same volume.

These estimates are made upon the description of the item in the census classification, when possible. It is assumed, for instance, that all gingham is used for clothing, and that all tire duck is used in industry. In an item like sheeting, the distribution was made after consultation with some of the largest cloth merchants. Household uses include bedding equipment, towels, tablecloths, and similar items; but do not include canvas, window shades, and wire insulation. The latter items are considered a part of the building trade and included in industry.

[1] Raw cotton not reported separately. Cotton yarn and raw cotton combined totaled 11,036,199 pounds.
[2] No raw cotton used. Cotton yarn used, 17,958,012 pounds.

Broadly speaking, it may be said that the quantity of cotton used in industry is determined by the state of industry rather than by the price of cotton. The automobile industry uses a great deal of cotton, but the quantity used in making any one machine is a negligible part of the value of the finished machine. The price of cotton is a greater factor in determining the price of automobile tires, but even here the demand for automobiles is the big factor in selling tires rather than the price of tires themselves. The same is true in a general way in the building, milling, and other important industries.

In the small wares like laces, embroideries, and thread, the price of the cotton used is small compared with the sales price of the goods to the consumer. The demand for such goods is not greatly affected by the price of raw cotton.

All textile materials have a more or less broad area of substitution for each other. Since cotton is the cheapest of the important textile materials, some cotton is usually mixed with the others when possible. The quantity used in different years is shown in Table 1. Table 3 shows the quantity and value of cotton used in the manufacture of wool and silk fabrics.

TABLE 3.—*Cotton used in the wool and silk industries, census years, 1904–1919*

Census year	Wool industry			Silk industry	
	Raw cotton [1]	Cotton yarn	Value	Cotton yarn [2]	Value
	Pounds	*Pounds*	*Dollars*	*Pounds*	*Dollars*
1904	36,593,401	60,429,356	17,437,600	9,018,295	3,057,989
1909	26,546,861	65,598,854	18,534,218	14,111,878	5,811,582
1914	35,307,083	56,988,329	17,658,852	18,333,810	7,241,577
1919	22,682,635	46,039,351	37,892,622	17,958,012	18,418,456

Compiled from Fourteenth Census of the United States, Manufactures, Vol. X, pp. 222 and 242.

[1] Not including "cotton dyed, bleached, carded, and other prepared and cotton waste"; in 1919 this item is reported aggregating 17,815,143 pounds, valued at $4,079,446.

[2] No raw cotton used in the silk industry.

On the other hand, the values of many kinds of cotton goods are determined to a large extent by the value of raw cotton. These include a large part of the cotton goods used for clothing and household furnishings, especially cheaper kinds like ducks, denims, and sheetings. As the poorest peoples depend on cotton goods for their clothing, the price of the goods is an important factor in determining the quantity taken.

WHERE COTTON IS CONSUMED

The number of spindles in a country is one of the most important indications of the demand of that country for raw cotton for use in the manufacture of cotton goods. There are approximately 158,000,000 cotton-spinning spindles in the world and they are found in every important country.

TABLE 4.—*World cotton spindles, active and idle, 1923*

Country	Cotton spindles	Country	Cotton spindles
	Number		*Number*
United States	37,409,000	Europe—Continued.	
Europe:		Esthonia	576,000
United Kingdom	56,583,000	Portugal	487,000
France	9,600,000	Finland	241,000
Germany	9,605,000	Other Europe	425,000
Russia	7,246,000	India	7,331,000
Italy	4,570,000	Japan	4,877,000
Czechoslovakia	3,508,000	China	2,680,000
Spain	1,813,000	Brazil	1,700,000
Belgium	1,683,000	Canada	1,375,000
Switzerland	1,513,000	Mexico	770,000
Poland	1,200,000	All other countries	325,000
Austria	1,023,000		
Netherlands	669,000	Total	157,775,000
Sweden	566,000		

Compiled by the Bureau of the Census from a number of sources, among them the International Federation of Master Cotton Spinners' and Manufacturers' Associations.

The quantity of cotton used in a country is not measured accurately by the number of its spindles, for different spindles spin different counts [3] of yarn. Two mills with an equal number of spindles running the same number of hours would not require the same quantities of cotton if one were spinning 10s and the other 100s, for the former would use almost ten times as much cotton as the latter.

Table 5 shows the number of running bales of cotton used per 1,000 spindles.

TABLE 5.—*Consumption of cotton, all kinds, actual bales per 1,000 spinning spindles, in specified countries, 1912–13 and 1920–23*

Country	1912 [1]	1913 [1]	1920 [2]	1921 [2]	1922 [2]	1923 [2]
	Bales	*Bales*	*Bales*	*Bales*	*Bales*	*Bales*
Great Britain	77.27	76.80	63.65	35.97	50.69	48.92
Germany	167.61	157.95	92.70	114.10	126.21	111.95
Russia	251.54	269.88	----	----	567.28	270.94
France	138.22	136.49	111.30	78.99	110.86	126.00
Italy	224.45	171.73	170.54	176.56	175.65	195.91
Czechoslovakia [3]	----	----	61.03	72.62	104.06	71.25
Spain	170.39	179.35	216.67	165.07	200.53	194.06
Belgium	168.91	172.47	160.08	133.50	151.28	161.94
Switzerland	70.67	70.45	57.60	53.90	57.57	48.77
Poland	352.23	312.80	64.52	114.56	184.96	189.61
Austria	180.10	170.52	57.60	----	----	----
Holland	186.92	177.17	181.79	170.46	175.52	165.56
Sweden	208.22	215.83	175.15	110.68	133.48	148.08
Portugal	165.71	163.64	140.02	251.70	156.03	177.15
Finland	150.65	156.54	109.48	120.77	142.22	133.67
Denmark	300.48	284.87	254.49	116.92	188.27	296.00
Norway	146.60	154.20	170.50	115.14	111.92	112.66
India	363.84	357.94	318.76	331.74	336.72	307.06
Japan	662.04	690.63	660.30	537.14	519.27	535.00
United States	175.55	183.57	179.11	133.95	159.82	177.47
Canada	148.29	132.70	173.93	136.56	149.68	163.94
Mexico	176.85	226.99	174.89	168.16	179.88	177.47
Brazil	579.88	423.57	228.00	378.90	300.78	328.61
World, as reported	156.48	156.30	----	116.17	137.38	141.27

Compiled from International Cotton Bulletin, official organ of the International Federation of Master Cotton Spinners' and Manufacturers' Associations, Manchester.

[1] Year ended Aug. 31.

[2] Year ended July 31.

[3] Exclusive of Austria. Of the 4,941,320 spindles existing in Austria in 1914, 3,582,772 spindles were situated in Czechoslovakia. The number of cotton-weaving looms in Czechoslovakia is 116,600.

NET CONSUMPTION OF COTTON AND COTTON GOODS

Some of the leading cotton-manufacturing countries buy American cotton, manufacture it, and sell the goods to other countries. The real measure of demand is not so much the conditions in the manufacturing country as the buying power and disposition of the people in the countries that ultimately consume the goods.

[3] The "count" of yarn is the number of 840-yard hanks to the pound.

TABLE 6.—*Ultimate consumption of cotton in specified countries*[1]

Country	1912–13		1920–21		1921–22		1922–23	
	Total	Per capita	Total	Per capita	Total	Per capita	Total	Per capita
	1,000 pounds	*Pounds*	*1,000 pounds*	*Pounds*	*1,000 pounds*	*Pounds*	*1,000 pounds*	*Pounds*
United States	2,236,865	23.3	2,185,134	20.4	2,652,887	24.4	2,853,112	25.9
United Kingdom	699,879	15.4	337,998	7.3	443,202	9.4	308,854	6.5
France	403,936	10.2	280,294	6.8	321,149	7.7	432,848	11.3
Germany	867,467	13.4	(2)	(2)	(2)	(2)	346,190	5.8
British India	1,069,300	4.4	547,360	1.7	758,645	2.4	1,041,968	3.3
China	2,255,413	6.7	1,195,154	3.7	1,082,321	2.5	1,441,742	3.3

[1] The figures in this table are derived as follows: To the stocks of cotton and linters at the beginning of the year are added the number of pounds grown in the country, the number of pounds of cotton, linters, and waste imported, and the quantity of goods imported. From this sum are deducted the stocks of cotton and linters at the end of the year and the quantities of cotton, linters, waste, and cotton goods exported. Where the manufactured goods are not given in pounds they are, when possible, converted on the basis of comparative weights. Five per cent is deducted from all cotton manufactured in a country as an allowance for "invisible waste." Five per cent may be relatively high for England because of the grade of cotton used.

The official sources from which data related to imports and exports were obtained are:

France. Direction générale des Douanes. Statistique mensuelle du commerce extérieur de la France.

Germany. Statistisches reichsamt. Monatliche nachweise über den auswärtigen handel des Deutschlands.

United Kingdom. Great Britain Board of Trade. Accounts relating to trade and navigation of the United Kingdom.

India. Statistical department. Accounts relating to the sea-borne trade and navigation of British India.

India. Statistical department. Accounts relating to the trade by land of British India with foreign countries.

United States. Bureau of foreign and domestic commerce. Foreign commerce and navigation of the United States.

China. Inspectorate general of customs. Foreign trade of China.

[2] Not available.

QUALITIES OF COTTON AFFECT DEMAND

Various classes of cotton are found in the total supply. The characteristics which determine the uses of these classes are grade, staple length, color, and character. Length of staple is the important factor determining the fineness of yarn and is important in determining strength. If the requirement is for very fine or strong yarn, longer staples are needed. The high-count yarns are used especially in making fine dress goods.

TABLE 7.—*Length of fiber and spinning counts of yarn*

Length of fiber (inches)	Spinning counts of yarn (number)	Length of fiber (inches)	Spinning counts of yarn (number)
	Up to—		Up to—
0.4	12s	1.25	70s
0.7	20s	1.3	90s
0.8	28s	1.5	140s
1.0	42s	1.6	200s
1.1	50s	1.8	400s

Adapted from NASMITH, JOSEPH. THE STUDENTS' COTTON SPINNING. Manchester, 1896. p. 74.

Even in the best bales of cotton the fibers are not all the same length, but in good cotton the bulk of the fibers tend to be about the same length. Such cotton is said to have "uniformity" and is more

valuable for spinning purposes than cotton which has no predominating length of fiber. Cotton that lacks uniformity is said to be "wasty," which means that many short fibers must be removed before it spins satisfactorily.

THE GRADE [4]

The number of pounds of yarn made from a given bale is determined largely by the grade and humidity of the cotton and the uniformity in length of the fibers. The higher grades of good character have comparatively little waste, but waste makes up an appreciable part of the weight of a low-grade bale of poor character.

Waste may be either visible or invisible. Invisible waste has no value and consists of such things as loss of moisture, dust, and short fibers which are lost in the air. Visible waste consists of trash and dirt which have little or no value; and motes, neps, and short fibers, which have some value. Thus, with the same set of machinery it takes longer to run a bale of 500 pounds of low-grade cotton through the mill than a high-grade bale of the same weight, and at the end of the process the spinner has fewer pounds of a less valuable article. The machines must be run slower and must be cleaned oftener, and the thread breakage increases in the lower grades. In spinning tests conducted by the United States Department of Agriculture in cooperation with textile schools and private mills, it was found that the breakage on the spinning frame (not due to mechanical defect) was 12.1 per cent of the number of threads in the Middling Fair grade, 13.8 per cent in the Good Middling, 14.4 per cent in the Middling, 27.5 per cent in the Low Middling, and 32.2 per cent in the Good Ordinary.

The value of yarn from high-grade cotton is greater than the value of yarn from the lower grades, because of its comparative tensile strength. The breaking strength in pounds per skein [5] of yarn is shown in Table 8.

TABLE 8.—*Comparative tensile strength of 22s yarns from specified grades of Upland cotton in pounds per skein of 120 yards* [a]

Twist constant [b]	Eastern Upland						Western Upland					
	Middling fair	Good middling	Middling	Low middling	Good ordinary	Average	Middling fair	Good middling	Middling	Low middling	Good ordinary	Average
	Lbs.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*
4.20	75.9	76.0	75.2	72.3	70.4	74.0	84.1	85.7	83.7	72.2	76.6	80.5
4.54	75.7	76.4	74.4	73.1	67.5	73.4	86.3	82.1	82.3	73.3	75.9	80.0
4.74	74.1	75.8	70.5	71.0	66.4	71.6	82.4	79.0	79.1	69.7	75.1	77.1
4.95	72.5	69.8	69.8	69.6	67.6	69.9	82.7	78.9	78.5	69.1	71.9	76.2
Average	74.6	74.5	72.5	71.5	68.0	72.2	83.9	81.4	80.9	71.1	74.9	78.4

Adapted from Department Bulletin 591, United States Department of Agriculture, page 6.

[a] As shown by mill tests.

[b] Twist constant 4.75 is considered as standard for warp yarns, Upland cotton. The twist per inch inserted in the yarn will be found by multiplying the square root of the number of yarns by the twist constant.

[4] See also p. 62.

[5] In commercial practice, the strength of yarn is determined by winding a skein of 120 yards (80 rounds on a 1½-yard reel) and breaking this skein on a standard strength-testing machine.

Bleaching qualities of the yarn or cloth are determined by the grade of cotton and they affect demand. The yarn which bleaches white with what the trade calls "bloom" has more value than the yarn with a dead appearance or a slaty bluish cast. According to tests, the yarn made of cotton above Middling is bloomy white, Middling makes white yarn, and the yarns from grades below Middling have a slaty bluish cast. Moreover, where goods are sold in the gray, the spots in the lower grades may decrease the value.

In making his selection the spinner weighs other characteristics of certain lots of cotton. He may say the cotton lacks character, which usually means that its color is more or less negative, or its feel lacks life and strength. Cotton may show many immature fibers or fibers that are partly perished. Such defects in cotton lessen the number of its uses.

Mills may develop, through brands or otherwise, a good will for a particular kind of cloth that requires certain characteristics in the raw cotton. This may have an important effect on the demand for the desired cotton.[6]

The spinning of each grade of cotton requires a different machinery "set-up" for best results. The demand, therefore, can not readily adjust itself to radical changes in the grade of crops. This is an important cause of the wide fluctuations in price as between grades.

Supplies of other textile materials affect the demand for cotton. In weaving, the yarns of silk, wool, linen, or cotton are used in almost any combination. When the goods made of the different materials come on the market, one is substituted for the other if supply or price conditions seem to warrant it.

TABLE 9.—*Raw fibers other than cotton consumed in textile industries in the United States, census years 1904–1919*

Year	Wool	Animal hair	Silk	Flax	Hemp, jute, etc.
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*
1904	501, 424, 203	44, 079, 928	11, 572, 783	(1)	(1)
1909	559, 850, 995	41, 549, 822	17, 729, 306	28, 063, 703	632, 786, 278
1914	510, 008, 799	44, 821, 941	25, 021, 945	26, 455, 737	751, 008, 927
1919	496, 434, 834	55, 364, 735	27, 857, 055	12, 787, 560	570, 494, 610

Rearranged from Fourteenth Census of the United States, Manufactures, Vol. X, p. 150.

[1] Not available.

MEASURES OF DEMAND

Spinners' weekly takings, or "gone out of sight" movement, is used rather generally as one indicator of the state of demand. This figure means shipment to mills, not mill purchases, and may not be timed with the sale of goods, or purchase of the cotton, or fixing of the price of the cotton which may take place either before or after the shipment of the cotton. The figures tend to forecast mill activity rather than to indicate the state of the market.

[6] For detailed analysis of qualities of cotton affecting demand, see Textile World, Aug. 16, 1924, p. 43.

Exports are used as a measure of foreign demand. These figures do not time with mill takings, because foreign merchants import large quantities of cotton and carry it by hedging. This is illustrated by Figure 1.

Mill consumption is used as an indication of demand for goods and as one item in arriving at remaining supplies. Mill consumption figures are published monthly for the United States by the Bureau of the Census. The only world consumption figures are those published semiannually by the International Federation of Master Cotton Spinners' and Manufacturers' Associations, Manchester, which publishes also the number of active spindles. The

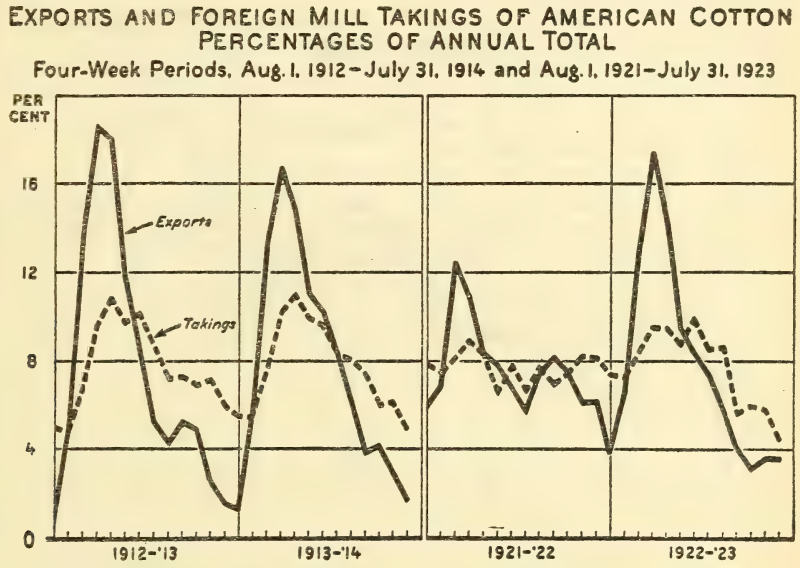

FIG. 1.—Each four-week period is shown as a percentage of the year's total. The export figures used are those compiled by the Department of Agriculture from Government and commercial reports and issued weekly in Crops and Markets. The foreign mill takings of American cotton are from the weekly reports of the New York Cotton Exchange

market does not wait for these figures to gauge demand. Reports of individual mill activities such as the amount of curtailment, if any, and the number of idle spindles, are used to forecast the census figures.

Cloth sales of mills, commission merchants, jobbers, and retailers are considered good indicators of demand. Weekly reports of Fall River print-cloth sales are important figures of sales at mill points. Some of the large dry-goods jobbers publish their weekly sales, which furnish some ground for estimating demand at jobbing centers.

The parity between the prices of cloth and yarn and of the raw cotton shown in Figure 2 is an index of the trend of demand.

SUPPLY OF COTTON

The world's supply of cotton for price-making purposes consists of cotton already in existence, or spots, and cotton in prospect. The

world's supply of spot or actual cotton equals the outturn of the current year plus the carryover from the previous year. The prospective supply is the anticipated size of the next crop. The potential crop enters the market through transactions for future delivery. Therefore the price-making machinery tends to base operations on a supply made up from three crops.

SUPPLY OF SPOT COTTON

The different kinds of crop figures may be illustrated by those published for the crop of the United States. The significant figures are (1) the estimated number of 500-pound gross weight bales

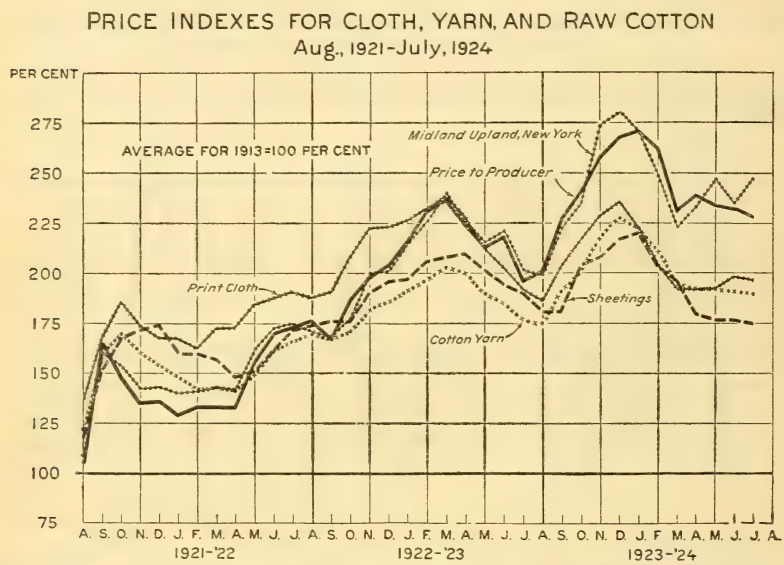

FIG. 2.—The prices used are taken from the United States Department of Commerce, Survey of Current Business. The yarn price is for carded white, northern, mulespun 22/1 cones, Boston. Prices of print cloth are for 27 inch, 64 by 60, 7.6 yards to the pound, Boston. Prices of sheeting are for 4/4 Ware Shoals, L. L. 36 inch, 4 yards to the pound, New York.

grown, (2) the counted gin bales, and (3) the number of bales entering certain designated markets, or the commercial crop.

Early in December the Division of Crop and Livestock Estimates of the United States Department of Agriculture makes its last report for the year. An estimate of the number of 500-pound gross weight bales of cotton grown is included, based largely on ginnings prior to December and the quantity estimated by farmers, ginners, and others as remaining yet to be ginned. This estimate is important in that it removes doubt as to the approximate size of the crop. The supply is thus evaluated and loses a large part of its force as a factor in the market. The question becomes one of balancing an untested demand against a known supply.

The Bureau of the Census gives the crop of the United States in terms of ginned bales. The final figure for any crop year is pub-

lished in March. Ginners estimate the quantity of any old cotton yet to be ginned and it is counted. The figures are given in gin-run bales except that round bales are counted as half bales. The chief significance of these figures lies in their assistance in arriving at the carryover, and as a final check on the December estimate of the Department of Agriculture.

The commercial crop of the United States, as reported by the New Orleans Cotton Exchange, is made up of receipts at Gulf and Atlantic ports, overland movement to mills, and southern mill consumption, minus cotton taken by southern mills from ports. Other organizations also publish data on the commercial crop. Almost no baled cotton is consumed on farms, so that the average of the figures for the commercial crop should be about equal to or a little larger than those of the gin-bale crop of the Bureau of the Census, plus linters, though for any one year they may be very different, because of a difference in the marketing policy of the growers.

THE WORLD COTTON CROPS

The world draws its supplies of cotton from many sources. The area of cotton production has not reached its limits, especially in the great regions of South America and Africa. Problems of expansion of production are economic rather than physical.

Official estimates of production comparable to those of the Department of Agriculture for the crop of the United States are given for Egypt, India, and some of the other countries; but the trade has not in the past attached to such figures the importance given to the official crop figures for the United States. Reliable census reports of ginnings are not available for the world crop or even for the leading countries. The commercial crop of India is based on receipts at Bombay; and the crop of Egypt, on receipts at Alexandria. The commercial crops of the other producing countries are usually combined under the heading "all other." Some figures are available for exports of Chinese cotton, and the Liverpool exchange publishes weekly imports of Peruvian cotton.

The United States Department of Agriculture and the International Institute of Agriculture attempt to obtain the gin-bale growth for all producing areas. The United States Department of Commerce and commercial factors do not attempt to estimate actual growth of the small countries, but rather to estimate the movement of the commercial crop.

About 97 per cent of the world's supply of cotton is grown in the Northern Hemisphere. The planting is done mostly in March, April, and May; and the harvest months are September, October, and November.[7] The world movement of cotton is therefore distinctly seasonal. The cotton in the Southern Hemisphere is planted from September to December, and the harvest period is from February to July. There are sufficient variations from these dates to justify the statement that the cotton crop exists at all times in all states of development. The distinctly seasonal character of the movement of the world's cotton into commercial channels is illustrated by Figure 3.

TABLE 10.—*Sources of the world supply of cotton, average 1909-10 to 1913-14, annual 1921-22 to 1923-24*

Country	Average 1909–10 to 1913–14	1921–22	1922–23	1923–24
North America:	*Bales*	*Bales*	*Bales*	*Bales*
United States	13, 033, 235	7, 953, 641	9, 762, 069	10, 139, 671
Mexico	193, 000	147, 302	178, 243	138, 000
Total	13, 226, 235	8, 100, 943	9, 940, 312	10, 277, 671
Central America, South America, and West Indies	5, 301	3, 062	4, 329	4, 137
Europe	13, 889	8, 311	13, 635	15, 147
North Africa:				
Egypt	1, 453, 000	902, 000	1, 391, 000	1, 353, 300
Anglo-Egyptian Sudan	12, 552	19, 707	23, 452	40, 607
Uganda	20, 338	31, 381	77, 678	94, 142
All other	3, 525	997	2, 816	5, 774
Total	1, 489, 415	954, 085	1, 494, 946	1, 493, 823
Asia:				
Turkey, Asiatic	133, 000	30, 000	50, 000	60, 000
India	3, 585, 000	3, 753, 000	4, 247, 000	4, 247, 000
Russia, Asiatic	953, 000	43, 000	55, 000	189, 000
China	3, 473, 000	1, 517, 000	2, 318, 000	1, 992, 900
Chosen (Korea)	17, 387	92, 448	103, 347	111, 088
All other	2, 080	1, 713	1, 687	2, 031
Total	8, 163, 467	5, 437, 161	6, 775, 034	6, 602, 019
Total Northern Hemisphere	22, 898, 307	14, 503, 562	18, 228, 256	18, 392, 797
Southern Hemisphere:				
Peru	110, 000	182, 410	200, 000	212, 000
Brazil	322, 000	505, 000	552, 857	576, 000
Argentina	3, 045	17, 282	26, 892	68, 785
All other	13, 743	18, 080	26, 286	35, 723
Total	448, 788	722, 772	806, 035	892, 508
Total of countries reporting for all periods listed	23, 347, 095	15, 226, 334	19, 034, 291	19, 285, 305

NOTE.—Division of Statistical and Historical Research. Official sources and International Institute of Agriculture except as otherwise stated. Bales of 478 pounds net. Data for crop year as given at the head of the table are for crops harvested between August 1 and July 31 of the following year. This applies to both Northern and Southern Hemispheres.

Figures include about 99 per cent of world production.

LINTERS

Even after ginning, some short fibers remain attached to the seed of most kinds of cotton, especially in the case of the American Upland varieties. Oil mills engaged in the cottonseed oil pressing industry, began to remove this adhering fiber, when conditioning the seed for oil extraction. The resulting by-product was soon found to have a distinct and increasing commercial value and, to distinguish it from the lint cotton of commerce, it became known as linters.

The development of new uses for linters, together with improved methods of reginning or "delinting," has resulted in an increased production from about 100,000 bales in 1900, selling for less than 1 cent a pound, to nearly 1,000,000 bales in 1924, selling for aproximately 5½ cents a pound. Delinting is accomplished by passing the cotton seed through a modified gin known as a linter.

[7] International Institute of Agriculture. The Cotton Growing Countries. Rome, 1922.

Statistics related to production, export, and stocks of linters are published monthly by the Bureau of the Census. No figures are available showing similar data for foreign countries.

In 1925 standardized grades for American cotton linters were established by the Secretary of Agriculture. These consist of seven grades represented by 12 samples each and an eighth, or descriptive, grade.

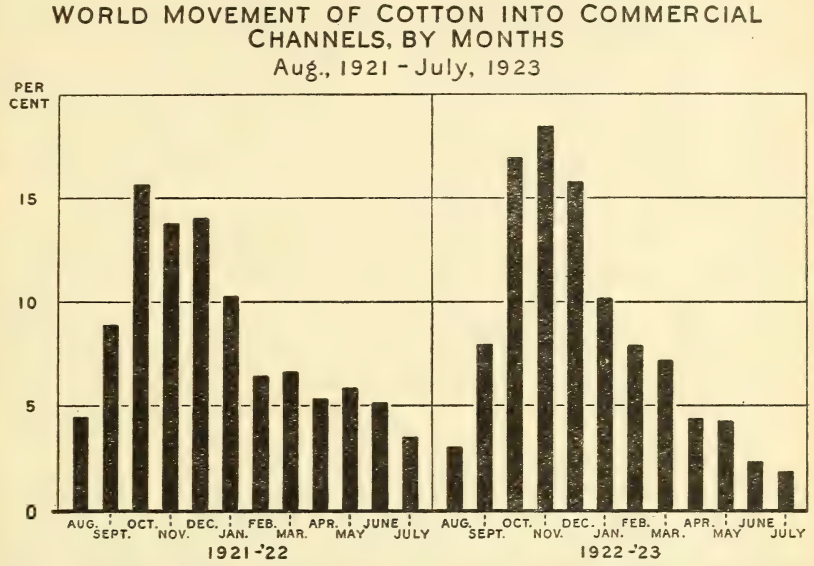
WORLD MOVEMENT OF COTTON INTO COMMERCIAL CHANNELS, BY MONTHS
Aug., 1921 - July, 1923
PER CENT
15
10
5
0
AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY JUNE JULY
1921-'22
AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY JUNE JULY
1922-'23

FIG. 3.—Combined monthly percentages of cotton moving into commercial channels, including (1) "into sight," as reported by the New Orleans Cotton Exchange; (2) receipts at Alexandria, as reported by the Alexandria Produce Association Returns; and (3) receipts at Bombay, as reported by Jones's Annual Cotton Handbook, 1924

TABLE 11.—*Comparison of reports on world cotton crop, 1914–1924*

[Thousands—i. e., 000 omitted]

Year ended July 31	World production of commercial cotton as estimated by—		World crop returns as estimated by Jones's Annual Cotton Handbook [2]	Year ended July 31	World production of commercial cotton as estimated by—		World crop returns as estimated by Jones's Annual Cotton Handbook [2]
	United States Bureau of the Census [1]	New York Commercial and Financial Chronicle			United States Bureau of the Census [1]	New York Commercial and Financial Chronicle	
	500-pound bales gross weight	*500-pound bales gross weight*	*Running bales*		*500-pound bales gross weight*	*500-pound bales gross weight*	*Running bales*
1914	21, 618	20, 915	29, 808	1920	20, 220	18, 211	22, 613
1915	23, 768	19, 579	27, 643	1921	19, 665	17, 019	20, 707
1916	17, 649	17, 371	26, 758	1922	15, 334	19, 295	21, 853
1917	18, 092	18, 023	24, 247	1923	17, 959	18, 911	23, 524
1918	18, 140	16, 786	22, 164	1924	18, 969	18, 934	23, 385
1919	18, 755	16, 862	20, 911				

[1] Exclusive of linters.

[2] Includes total growth of the United States.

QUALITY AS A FACTOR IN SUPPLY

The quality of a crop affects the supply in two ways: It changes the total quantity of yarn obtainable and the relative supplies of more or less noncompeting cotton. The yarn outturn is affected particularly by the grade of the crop. Spinning tests conducted by the Department of Agriculture in 1917 showed that the total visible and invisible waste which occurred, from the time the cotton entered the opening machines until it passed through the cards, varied from 8.22 per cent for Middling Fair, the best grade, to as high as 16.89 per cent for Good Ordinary.[8] The staple length and character are also factors in determining poundage of yarn outturn, and, to some extent, color is a factor.[9] Grade is determined by weather and the care used in harvesting and ginning. Color is largely a result of exposure and frost. Character in cotton may be said to be the resultant of variety influenced by seasonal conditions.

Staple length is the important factor in determining the count of the yarn (fineness). Based on staple length there are three more or less noncompeting groups of cotton. Cotton under 7/8 inch in length is known as short cotton. It can be used in making only the very low counts of yarn. The bulk of the supply of this cotton comes from India and China. The medium lengths, 7/8 to 1 1/8 inches, comprise the second group. It is sometimes called "bread and butter cotton" because of its many uses and comparative cheapness. It may be used as a complete substitute for the first group and make better quality yarn, and it is used in making yarn that can not be made of shorter cotton. The United States grows most of this type of cotton. The third group is known as staple cotton, and is made up of cottons 1 1/8 inches or more in length of staple. These may be substituted for the others, but are usually used to make cloth requiring very strong or very fine yarn. The main sources of supply for cottons of this group are Egypt, United States, Peru, and Brazil. An oversupply of the cotton in any one group may tend to depress prices in the other groups, but the decline in the oversupplied group will be much greater.

CARRYOVER

The gin-bale carry over is the quantity of countable cotton on hand at the beginning of the commercial year, which in most countries is August 1. Satisfactory carryover figures are exceedingly difficult to obtain.

The census makes an estimate of the carryover of gin-bale cotton in the United States in an item of stocks as of August 1. These include cotton (1) in consuming establishments, (2) in public storage and at compresses, and (3) estimated quantity elsewhere. The New Orleans Cotton Exchange publishes carryover figures for the United States.

Estimates of the world's carryover of American cotton are published by several agencies. Only those of the United States Bureau of the Census are here described. The census began its estimates

[8] DEAN, WILLIAM S., and TAYLOR, FRED. MANUFACTURING TESTS OF THE OFFICIAL COTTON STANDARDS FOR GRADE. U. S. Dept. Agr. Bul. 591. 1917.
[9] See U. S. Dept. Agr. Bulls. Nos. 121, 946, 990, and 1148.

with the figures for July 31, 1921. The items included are stocks (1) in American mills, (2) in public storage in the United States, (3) elsewhere in the United States, (4) in the British mills, (5) in British ports, (6) at sea to Great Britain, (7) in continental mills, (8) in continental ports, (9) at sea to continent, (10) in and to Japan, Canada, and other countries. The figures are given in bales of 478 pounds net. They do not include linters.

TABLE 12.—*Comparison of reports of world carryover of raw cotton, excluding linters, American and all kinds on August 1, 1918–1923*

Year ended August 1	American			All kinds
	New Orleans Cotton Exchange	New York Commercial and Financial Chronicle	Bureau of the Census	Bureau of the Census
	Running bales	*Bales of 478 pounds net*	*Bales of 478 pounds net*	*Bales of 478 pounds net*
1918	4,018,000	3,495,188	[1]	[1]
1919	6,094,000	6,168,802	[1]	[1]
1920	5,216,000	6,052,391	[1]	[1]
1921	8,699,000	9,335,620	9,351,000	14,352,000
1922	4,547,000	5,462,553	5,129,000	9,323,000
1923	2,396,000	3,489,521	3,297,000	6,573,000

[1] Not available.

WORLD CARRYOVER OF GIN-BALE COTTON

No estimates are made of world carryover of all gin-bale cotton, but the Bureau of the Census issues a figure made up of the same items as the census world stocks of American cotton except that other cottons are included and stocks at Bombay and Alexandria are added. Figures are given in bales of 478 pounds net. The first date for which figures are available is July 31, 1921. Figures for all the countries other than the United States are given in terms of stocks of commercial cotton at the designated places.

THE COTTON MOVEMENT

The sum of visible and invisible supplies at the end of the year is a carryover figure, but it is based on the commercial crop, and is not comparable with the gin-bale carryover for the United States.

The visible supply of cotton as of August 1 is the carryover of the commercial crop less mill stocks. Weekly figures are published by the Commercial and Financial Chronicle, the exchanges, and others. The items included in the Chronicle figures are the stocks in the European port markets, Alexandria, Bombay, United States ports and 41 interior towns, and cotton afloat to Europe from whatever source. The cotton exchanges, with minor variations, have the same items as the Chronicle. The dates from which figures are reckoned do not always correspond.

The "into sight movement of American cotton" includes port receipts, overland to mills, increase or decrease of interior-town stocks, and southern mill takings. These figures are issued each week by certain journals, and by the cotton exchanges of New York, New

Orleans, and Liverpool. They indicate the readiness with which the farmers are selling and, to some extent, the keenness of the American mill and export demands. "Into sight" statistics for the world supply of all cotton are not compiled, but Figure 4 shows the "into sight" movement of American cotton, as compared with ginnings and farmers' marketings.

The "gone out of sight" movement is the same thing as spinners' takings or shipment to mills. It does not represent the rate of mill purchases. The figures are published weekly by the same factors that publish other cotton-movement figures.

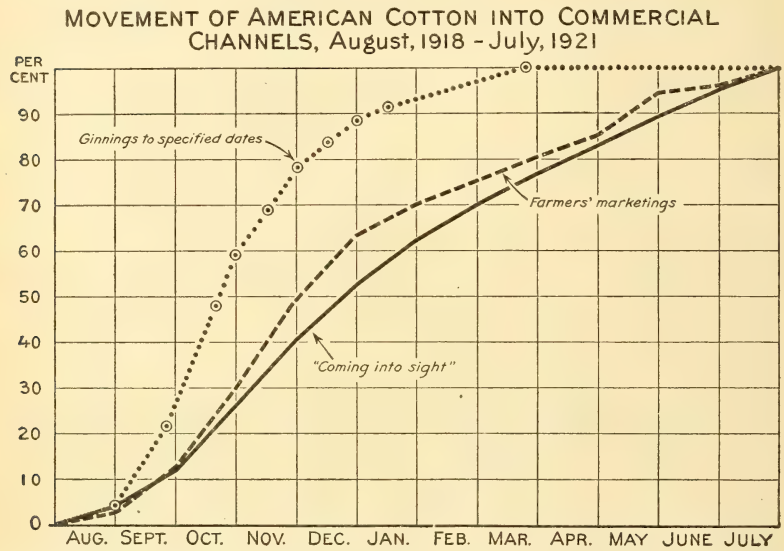

FIG. 4.—Cotton moves into commercial channels somewhat more slowly than it is marketed by farmers, and in a rather even flow. The bulk of the ginning is done during three months, and the cotton accumulates rapidly in farmers' hands in spite of heavy sales in the fall. Figures are cumulative; that is, total to date. The data for this graph were compiled from the following sources: Ginnings, from U. S. Dept. of Commerce, Cotton Production and Distribution, Bulletin No. 153; farmers' marketings, from U. S. Dept. of Agr. Yearbook; "coming into sight," from reports of the New York Commercial and Financial Chronicle. For each series the figures used are three-year averages of the percentages for the years beginning August 1, 1918–1920

Visible supply and "into sight" figures are published for the Indian and Egyptian crops in considerable detail, and some figures are published on the Peruvian, Brazilian, and Chinese crops.

The invisible supply of cotton is essentially the sum of mill stocks. It is an inventory figure. It is the difference between the sum of the "gone out of sight" and the mill stocks at the beginning of the period, less consumption. Figures for mill stocks of the United States are published monthly by the United States Bureau of the Census. World figures are gathered only by the International Federation of Master Cotton Spinners' and Manufacturers' Associations and are published semiannually.

Stocks of certificated cotton in American futures markets represent the cotton available for immediate delivery in satisfaction of future contracts. They are important from the standpoint of maintain-

ing the proper parity between spots and futures. The number of bales and the grade of this cotton are published in the daily report of the exchanges.

FORECASTING SUPPLY

The number of acres harvested multiplied by the lint yield in pounds per acre, divided by the average weight of bales, equals the gin-bale production. The net-weight bale production multiplied by the yarn yield percentage of the average grade equals the yield of spinnable cotton.

Therefore the forecasting of the supply involves forecasting the acreage, the yield per acre, and the quality of the crop. The most potent factors determining acreage are the relative price of cotton in December, January, and February, and the yield per acre of the previous year, or the profitableness of the previous crop.[10]

The above factors may estimate the intentions of the planters, but the weather or other hindrances may prevent the execution of the intent in any given year. The United States Department of Agriculture does not attempt to forecast the acreage planted to cotton. It makes an estimate of the acreage planted and in cultivation as of June 25. This estimate is corrected in the December general crop report by an estimate of the acreage harvested, yield per acre, and acres abandoned since June 25. The final acreage figure is arrived at by dividing the production by the estimate of the yield per acre.

Forecasting yield per acre involves many factors. The weather is the big factor. It is so important, that through the summer, the market is often spoken of as a weather market. For any given place there may be said to be a combination of temperature and moisture which will give the optimum yield. A deviation in either direction will decrease it. Thus either an excessively dry, hot period, or a long period of wet, cool weather, tends to decrease the yield. The problem of forecasting the yield in the United States from weather is different since the introduction of the boll weevil. There are still other factors which must be taken into account such as (1) quantity of fertilizer used, (2) amount of available labor, (3) number and kinds of pests, (4) kind and amount of effort used to combat pests, and (5) price.

FORECASTING THE CROP OF THE UNITED STATES

The crop of the United States is the dominating one, and the methods of forecasting it have been the most highly developed. Forecasts are made by private concerns and by the United States Department of Agriculture. The first report of the United States Department of Agriculture is issued about June 1 and is as of May 25. It is merely a condition report. The second report is issued as of June 25. It contains an estimate of acreage and a condition report which, when multiplied by the June par, gives the approximate outturn of the crop, provided the development of the crop for the remainder of the year equals the average of previous years.

[10] SMITH, BRADFORD B., FORECASTING THE ACREAGE OF COTTON. Jour. Amer. Statistical Assn., Mar., 1925.

The par is essentially a yield weight, which, when multiplied by the condition figure, gives the yield per acre, and this, multiplied by the estimated acreage gives the probable outturn.

Beginning with August semimonthly reports are now issued until December 1, when the final estimate of the crop is made. This last report also contains the preliminary estimate of the acreage harvested and the yield per acre.[11]

Other countries, especially India and Egypt, make official estimates of acreage planted and periodic estimates of the condition of the growing crop to serve as a basis of forecasting the yield.

TYPES OF COTTON MARKETS

Thousands of cotton markets handle American cotton. They are classified in different ways for different purposes. The United States cotton futures act recognizes certain of these markets in this country as futures markets and others which may on investigation be designated by the Secretary of Agriculture as bona fide spot markets; that is to say, spot markets in which the volume of business is normally large enough to make possible an accurate quotation of values. Sometimes markets are classed into spinners' markets, speculative markets, port markets, and interior markets. They may be classed as speculative markets and spot markets, and in other connections they are classed as domestic and foreign markets. The classifications point out peculiar characteristics of the different markets and are valuable in the connection in which used.

For the purpose of this discussion the cotton markets are classified from the standpoint of predominant economic services performed: (1) Spinners' markets, (2) futures markets, (3) centralizing spot markets, and (4) local or primary markets.

SPINNERS' MARKETS

LOCATION

Spinners' markets are located in or near mill centers, and exist primarily to supply spinners' needs. Broadly speaking there are two groups of spinners in the United States, known as the northern and the southern group. Each group has its own markets. The northern group is sometimes further separated into the New England and Middle Atlantic divisions. In these subdivisions there are a number of city markets. Among them, Boston is a large market, and Fall River is the most important city in the United States from the standpoint of cotton manufactures. It is best known as a print-cloth market, and it handles a great deal of medium and low grade cotton. New Bedford is predominantly a staple market because most of its mills spin high-count yarns.

The Middle Atlantic States have no spinners' markets so well known as those of New England, but New York and Philadelphia are well-known markets.

[11] For a detailed account of the bureau's methods, see BECKER, JOSEPH A. COTTON CROP REPORTS OF THE UNITED STATES DEPARTMENT OF AGRICULTURE. International Cotton Bulletin No. 8, June, 1924. See also, International Cotton Bulletin No. 5, Sept., 1923, pp. 13–17.

The spinning mills in the South are not so highly centralized geographically as those in the North. Bristol County, Mass., for instance, contained 7,702,569 spindles in 1922, which was 40.8 per cent of the total for New England. Of the others in New England, Providence County, R. I., had 1,824,172, and Middlesex County, Mass., had 1,178,908. In the Southern States no one county had as many as a million spindles in 1922, and only four counties—Anderson, Greenville, and Spartanburg in South Carolina, and Gaston in North Carolina—had more than 500,000. The centers in this section which are known particularly as spinners' market are Charlotte, Spartanburg, Gastonia, Greenville, Augusta. and Atlanta.

FOREIGN SPINNERS' MARKETS

The foreign spinners not only have a market in the local mill town, but their broker often buys in the import market. The important European spinners' markets are Liverpool and Manchester in England; Lille, Rouen, and Mulhausen, France; Chimnitz, Reine, and Munich, Germany; Rotterdam, Holland; Milan, Italy; Barcelona, Spain; Ghent, Belgium; Zurich, Switzerland; Vienna, Austria; and Lodz, Poland.

PERSONNEL OF THE SPINNERS' MARKET

The spinners' market is made up of the mill buyer or his representative on one side and the dealers, merchants, and brokers on the other. In New England the mill treasurer buys the cotton either directly or through a hired representative. He buys almost invariably from a dealer, though he may buy from a cotton merchant who has representation in the market. Many southern spot firms, cooperative associations, and others have representation in these markets, but many of them sell to the dealers and merchants and do not attempt to do business direct with mills.

In the South the dealer is of comparatively minor importance. The mills buy their supplies largely from spot merchants though they may buy from brokers, farmers' cooperative marketing associations, or other sources that offer good results. Many of the smaller mills buy direct from the growers and local cotton buyers.

The spinners' markets in Europe buy almost entirely through buying brokers, and the importing merchant sells to them largely through selling brokers or agents.

The personnel of a market depends largely upon the services to be performed. In New England the mill treasurer finds it desirable to deal through a broker rather than buy direct from the southern shipper. To serve his mill customers most effectively and at the same time protect himself, the broker has become a dealer. The cotton is billed direct from the southern warehouse to the mill as before, but payment for the cotton and adjustments of claims are no longer matters between the shipper and the mill treasurer; they are matters between the mill and the dealer, and the dealer in turn transacts all business with the shipper. The dealer buys according to New England mill rules from the southern shipper, so he is in position to pass the claims made against him by the mill back to the

shipper. In the South, where there is opportunity for closer relationship between the shipper and the mill buyer, the services of the dealers are not so urgently needed.

METHODS OF SELLING IN SPINNERS' MARKETS

Cotton is offered for sale in spinners' markets in America in even-running lots of 50 or 100 bales, or even more. These lots are usually made up according to some type. Cotton may be sold in these markets according to Government standards, but it is rarely wholly so sold. In case of the longer staples it is often sold on actual sample. Most of the cotton sold to New England mills is sold by type. The type may be made up by the mill to be matched by the seller; but more often the seller is made acquainted with the mill's needs and, in the light of such knowledge, he makes up and submits types. These types are matched year after year as nearly as crop conditions permit. Sometimes they are described partly according to Government standards and partly by type.

A mill may wish Strict Middling in color, Middling in leaf, 1⅛-inch staple, and good hard-bodied cotton equal to type B A N G. Here the only element not standardized is the character, and it alone may be referred to the type for settlement.

Each mill has its own method of rating shipments. The usual points considered are (1) Staple length, (2) working quality, uniformity of fibers, or character; (3) quantity of foreign material; and (4) color. Each of these items is rated differently, depending on the particular use to which the cotton is to be put. Each lot is rated on the basis of 100 per cent. If some of the bales fall below in any point, a certain percentage is taken off. If some of them go over, a percentage is ordinarily added, but not in the same ratio as the subtractions. If the quality is very much better than that bought, it may become a liability and be discounted. Mills that want a particular quality of cotton may give extra credit for a large percentage of bales strictly on the type and may discount heavily where there is considerable variation either above or below. Some mills require a much higher standard of performance than others.

In New England each mill buyer has a list of dealers and merchants' representatives from whom he ordinarily buys. In the busy season these sellers call at the treasurer's office twice each day.

Mills prefer to buy cotton to cover orders for goods, but if cotton is cheap, they may buy as a speculation. If a desirable lot of cotton is offered at an attractive price, the mill may buy it and sell a hedge against it. The mill may buy for immediate delivery, but usually it buys for shipment in a designated forward month or months.

The New England dealer, who was formerly a broker and is still sometimes incorrectly so designated, represents one or more southern shippers who may have similar dealer representatives in other markets. Each dealer thus has several lots of cotton for sale, and each one of the lots may be for sale in other markets as well. The shipper makes two kinds of offers to the dealer, and the dealer in turn to the spinner. He offers cotton either "firm" or "subject to confirmation." A firm offer is good until the close of the day and

is most desired by the dealer and spinner. An offer subject to confirmation must have the shipper's approval before the deal can be closed. The spinner buyer may also make firm offers and offers subject to confirmation.

LOCATION OF COTTON TRADED IN

Stocks of cotton in strictly spinners' markets are small. They consist either of even-running lots desired by mills of that center or of mill rejections. The merchants who have large enough stocks to permit scattering them rather widely carry most of such stocks. If the spinners' market is also a concentration market, as may happen in the South, or an import market like Liverpool, Bremen, or Havre, the stocks may be large; but this concentration is for another purpose than convenience in selling to spinners. What the spinner wants is a wide range in the selection of the cotton suited to his needs. He thus chooses representative dealers in the markets where cotton that fulfills his requirements may be found.

Whatever developments there may be in the use of standards will doubtless facilitate buying on description, and this in turn should give individual spinners access to more cotton through an increase of competition among sellers and a probable slight reduction in sellers' costs.

The use of staple standards has increased rapidly in recent times, but there are certain reasons why private types are still preferred by some. The most important is the fact that the element of character has not been standardized. It is possible to buy on Government standards for grade and staple, and then attempt to give a verbal description of character, but these descriptions are not wholly free from the possibility of misunderstandings. To avoid such misunderstandings the trade has bought and sold in terms of types. Evidently further development of standards is needed which will take character into account. This would widen the spinner's range of selection. There has been some lack of understanding on the part of mills as to how to adapt the present grade standards to their uses. Should a mill desire a narrower range in grade than the Government box of type samples shows, it may buy according to the box with the objectional bales eliminated by number, or it may specify any sample or number of samples as a type. The samples are numbered, beginning in the upper left-hand corner and proceeding to the right.

WHEN MILLS BUY

No statistics are available which gauge the volume of spinners' purchases. Two sets of figures are ordinarily used in America for this purpose. Those known as "mill takings" are a fair index of the volume of cotton moving to mill centers, but are not necessarily an index of mill purchases. The mill may buy the cotton several weeks before it was shipped, or the mill may receive the cotton and make it up before the price is fixed. It is not uncommon for spinners to buy their cotton on "basis" as early as 12 months in advance.

Table 13 shows the monthly percentage of mill takings.

TABLE 13.—*Mill takings of American cotton: Percentages by months, 1912–13 to 1922–23*

Month	1912–13	1913–14	1914–15	1915–16	1916–17	1917–18	1918–19	1919–20	1920–21	1921–22	1922–23
	P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
August	8.3	7.9	4.4	5.1	6.1	6.7	7.7	6.3	8.4	7.1	7.6
September	5.8	7.2	6.1	5.7	6.4	6.7	8.7	6.5	7.3	6.8	6.1
October	9.9	11.0	8.9	8.1	10.5	8.6	10.2	8.0	8.8	9.1	8.8
November	12.5	11.0	9.9	9.9	11.9	12.3	11.1	10.7	8.8	12.5	10.7
December	12.5	10.7	10.6	10.2	9.2	8.8	8.9	11.1	8.5	9.7	10.4
January	11.1	9.1	9.7	9.9	8.8	7.7	9.1	9.8	7.5	8.7	9.1
February	7.9	7.6	7.0	9.0	6.9	5.3	6.2	8.3	7.6	7.5	7.7
March	7.9	7.5	11.5	9.6	8.5	7.2	6.8	8.3	7.8	3.8	6.9
April	6.7	9.8	9.2	8.4	8.5	9.7	6.3	7.3	9.1	8.0	7.8
May	5.9	6.5	8.1	8.9	7.7	9.9	7.8	7.6	9.4	7.8	5.1
June	5.4	6.5	7.9	7.4	8.7	7.6	7.1	7.6	8.6	8.1	9.8
July	6.1	5.2	6.7	7.8	6.8	9.5	10.1	8.5	8.2	10.9	10.0

Compiled from southern consumption plus northern mill takings, as reported in the New York Commercial and Financial Chronicle.

The report of cloth sales is the other index of activity in the spinners' markets. The sales at Fall River, particularly significant, are reported by weeks. Such figures have greater value when it is known whether sales are made out of hedged stocks on hand, or are sales of cloth still to be manufactured.

Table 14 shows the sales of print cloths at Fall River, for the nine years beginning with the year 1914–15. Other figures which indicate the degree of mill activity, such as the number of active spindles and the number of bales consumed, are published monthly by the Department of Commerce.

TABLE 14.—*Sales of print cloths at Fall River, August, 1914–July, 1923*

[Thousands—i. e., 000 omitted]

Month	Average 1914–1922	1914–15	1915–16	1916–17	1917–18	1918–19	1919–20	1920–21	1921–22	1922–23
	Pieces	*Pieces*	*Pieces*	*Pieces*	*Pieces*	*Pieces*	*Pieces*	*Pieces*	*Pieces*	*Pieces*
August	583	285	775	1,470	600	570	310	150	620	470
September	712	500	890	1,050	790	240	680	340	720	1,200
October	581	730	490	825	840	275	740	60	390	875
November	476	440	600	590	1,010	90	520	50	340	640
December	594	696	921	385	730	200	690	155	870	695
January	600	842	690	320	590	200	620	850	395	890
February	491	506	800	655	430	180	270	380	580	615
March	827	770	1,190	1,708	875	630	490	440	540	800
April	555	300	670	820	430	1,180	420	335	650	190
May	592	850	420	740	565	1,080	145	570	800	160
June	551	491	520	800	630	660	240	390	890	335
July	325	276	450	250	350	360	140	420	540	135

Compiled from SHEPPERSON, A. B. COTTON FACTS, Edition of 1923, New York, p. 190.
The figure as shown for each month is the sum of the sales reported for the weeks ending on Fridays of that month.

PRICE MAKING IN SPINNERS' MARKETS

Price making in a spinners' market is largely concerned with bargaining on the "basis" or parity between spots and futures. Prices are made in American markets in terms of New York or New Orleans futures. The bargaining points are the "on" or "off" for grades above or below Middling, the "on" or "off" for different

staple lengths, and finally, the "on" for delivery of even-running cotton at the mill warehouse. After agreement has been reached on these three points, the mill is usually given the privilege of calling the day when the price is to be fixed; that is, the future price to which the "ons" and "offs" shall be added or subtracted to make the price. The spinner prefers the call because it gives him advantages in bargaining for the sale of his product and relieves him of the duties of hedging. The merchant does not care particularly, because his interest usually coincides with that of the spinner. The spinner wishes to call the price when futures are low, and this suits the merchant, for he can buy his hedges back cheaply.

RULES GOVERNING TRANSACTIONS IN SPINNERS' MARKETS

The rules governing the purchase and sale of cotton in spinners' markets are made and administered by the trade organizations at interest: (1) The spinners, (2) the cotton dealers, and (3) the southern shippers. Throughout New England there is one body of rules known as "New England terms for buying and selling American cotton." These rules are accepted by the Arkwright Club, representing the mills, and by the New England Cotton Buyers' Association, the Fall River Cotton Buyers' Association, and the Providence Cotton Buyers' Association.

The rules define what constitutes satisfactory shipments and the percentage of variation above and below the grade or type specified that may be delivered. Thus they provide that "sales calling for even-running grades or made on type, may contain 5 per cent a grade below the grade specified if offset by an equal number of bales a grade above that specified—any excess of low grades may be rejected by the purchaser, or claimed for at an allowance. If rejected, the seller is to have the right to replace and the purchaser may require replacement. The cost and actual expenses of handling rejections shall be paid by the seller."

The rules lay down detailed plans of procedure in such matters as arbitration, classification of cotton, making and settling claims, rejections, replacements, fixing handling charges, and adjustment of transportation rates and insurances.[12]

FUTURES MARKETS[13]

A futures market is a place where cotton is bought and sold for future delivery on a rigidly standardized contract. Futures markets are formed by an association, and transactions are made only through members, whereas spot markets are generally free markets. Futures markets differ from spot markets primarily because contracts for the future delivery of cotton, or "futures," are bought and sold in them as well as contracts for the delivery of spot cotton, or "spots." Both kinds of contract are defined here to prevent confusion because of the close relationship between the two. The following discussion applies particularly to the transactions on the New York and the New Orleans exchanges.

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[12] For details see New England Terms for Buying and Selling American Cotton, 1924.

[13] For a discussion of the origin of the Futures Market, see Cox, Alonzo B., Evolution of Cotton Marketing. Mimeographed report.

The "future" is a contract entered into between two exchange members as the buyer and the seller, which specifies that 50,000 pounds of cotton in about 100 square bales, growth of the United States, shall be delivered from an approved storage place in a specified future month at a fixed price for Middling, the basis grade, though the seller has the right in the settlement of the contract to deliver any grade permissible under the cotton futures act at the differences fixed in accordance with the provisions of the act. According to the rules of the exchange, it is a contract entered into across the trading ring in one of the futures exchanges, and must be made by loud outcry. The seller has the right to choose the day within the month on which he will make the delivery, but notice of his intent to deliver must be given five days in advance. When the cotton has been invoiced, he must give notice of the place within the city where delivery will be made, and of the grade or grades of cotton to be delivered, within the range prescribed by the cotton futures act. The United States cotton futures act, the regulations of the Secretary of Agriculture thereunder, and the rules of the exchange are incorporated by reference in the contract.[14]

Thus the specific quality of cotton to be delivered at the maturity of the contract is not specified, except in general terms, by the rules of the exchange or by the cotton futures act. The latter provides that the cotton must be in good merchantable condition; must have a length of staple of at least seven-eighths inch; must be of or within the 10 grades declared deliverable; and must be free from undue special defects such as excessive gin cutting, mixed pack, and perished staple.[15] The premiums or points "on" for grades more valuable than Middling and the discounts or points "off" for grades less valuable are determined at time of settlement according to methods prescribed by the United States cotton futures act and the regulations of the Secretary of Agriculture under the act. If the differences established are truly commercial, no grade gives the seller any advantage over another for purposes of delivery, nor the buyer any in receiving delivery. The unit of all transactions on the New York and New Orleans cotton exchanges is 50,000 pounds in approximately 100 bales, known as one contract.

A "spot" contract, on the other hand, is one which calls for a lot of cotton of specific description. It may be for delivery immediately or at some forward date, and the price may be stated as so many cents per pound; but the price is usually fixed in terms of so many points "on" or "off" the value of contracts for future delivery in a named month in a specified future market. It may be for any number of bales and between any two persons or firms.

A transaction in spot cotton may take any one of a large variety of forms. Forward delivery sales are spot transactions, as are sales "to arrive," sales f. o. b., or "afloat," as well as sales where the custody of the cotton in the form of warehouse receipts or other evidences of actual transfer are passed immediately by the seller to the

[14] In United States Department of Agriculture, Service and Regulatory Announcements No. 91, see both the regulations promulgated by the Secretary of Agriculture and the cotton futures act itself in Appendix I.

[15] See U. S. Dept. of Agri. Service and Regulatory Announcements No. 91, which contains the regulations of the Secretary of Agriculture under the United States cotton futures act; see also Service and Regulatory Announcements No. 82.

buyer. Spot contracts are not traded in across the ring where futures are bought and sold. All such transactions are private, and there is no ring or designated place for trading in spot cotton.

NUMBER AND LOCATION

There are eight places in the world where contracts for the future delivery of cotton are dealt in. New York, Liverpool, and New Orleans are of major importance. New York and New Orleans contracts are based on American Upland cotton. In addition to trading in American cotton, the Liverpool Cotton Association has a separate ring and contract for trading in Egyptian cotton. The other futures markets are at Alexandria, Egypt; Bombay, India; Bremen, Germany; Chicago, Ill.; and Havre, France. The contract of the Havre exchange is based on American cotton, and the business transacted is similar to that of New York and New Orleans, but in smaller volume. The exchange in Alexandria has a contract similar to the Liverpool Egyptian contract, which provides for settlement on differences in value of staple length as well as on values of differences in grade. The Bombay market deals in Indian cotton and has a separate contract covering each important growth in the country.

There is an important spot cotton market in each of these cities with the exception of New York and Chicago. The merchants in New York handle a great deal of spot cotton, but it is chiefly cotton bought in the South and routed by way of New York to some New England mill center or to a foreign market.

ORGANIZATION OF FUTURES EXCHANGES [16]

The general principles of organization and operation of the different exchanges are essentially the same. The New Orleans Cotton Exchange is selected for description here. It is a corporation domiciled in the city of New Orleans and chartered under the laws of Louisiana. The purposes of the organization and the general principles limiting its field and its methods of operation and government are set forth in a constitution and by-laws. These must be consistent with the laws of Louisiana and of the United States cotton futures act, and must be adopted by the members. It has a capital stock of $100,000 divided into 500 shares listed at $200 each, though the market value of memberships is many times this amount. A member must hold at least one share, though ownership of a share does not confer privileges of membership.[17]

The actual conduct of business is under the general direction and supervision of a board of directors. All powers of the association are vested in and are exercised by a president, a vice president, a treasurer, and 12 members, who constitute a board of directors elected annually by all the members. The board adopts the rules and regulations which are designed to carry out the purposes of the association, in keeping with the constitution and by-laws, and performs such other acts as are authorized by the charter.

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[16] For a more detailed description of the different futures exchanges, see HUBBARD, W. H. COTTON AND COTTON MARKETING. New York, 1923.

[17] In New York there are 450 memberships, each worth (1924) about $30,000. The initiation fee is $1,000. The board of managers determines the amounts of the annual dues, fees, and fines.

The board of directors governs the organization largely through committees. The important committees are those on membership, rules, information and statistics, finance, arbitration, appeals, spot quotations, contracts for future delivery, classification and supervision, and deliveries.

Any person of age, good character, and commercial standing may become a member of the exchange, provided he is recommended by the committee on membership and is approved by a majority of the board of directors under certain prescribed rules. In addition to the initiation fee of $500 and annual dues of $150, members may be called upon to pay other small fees and taxes. At present each member must pay 6 cents on each futures contract sold, as assessments toward the building fund of the exchange. Each must also pay 0.75 cent on each bale of spot cotton sold or bought, as a levee inspection fee.[18]

The exchange states the purposes of the association as follows:

> The purposes of this association shall be to provide and maintain suitable rooms for a cotton and commercial exchange, in the city of New Orleans; to adjust controversies between members; to establish just and equitable principles, uniform usages, rules and regulations, and standards for classifications, all of which shall be for the government of transactions in cotton or other articles or matters of trade between members; to acquire, preserve, and disseminate information connected therewith; to decrease the risks incident thereto, and generally to promote the interests of the trade and the amount of the cotton and other business in the city of New Orleans.

The futures market performs several functions. It is essentially a price-making organization. The thing traded in is a contract for future delivery of cotton. It is based on Middling but may be settled by the delivery of other grades at the prevailing differences. Thus it does not represent the value of any particular grade of cotton, though the more perfectly it functions, the more nearly the basis price approaches the price of Middling spot cotton. The price made is a general level representing the relative price position of all cotton, rather than the price of any particular grade. The market is conducted essentially as reciprocal auction, though the buyer is not compelled to receive at a higher price than his bid or the seller to take a lower price than that offered. Every influence which is calculated to affect the supply of or demand for cotton, either at present or within 12 months, may register its influence immediately on the price in the futures market. It may be weather conditions in the Cotton Belt, business conditions, or a calamity like the earthquake in Japan. The price at any time is a balance of the judgments of those buying and selling in the market. When it is realized that each has a different temperament, different contacts and sources of information, and different amounts of money, it is no wonder that the price fluctuates almost continuously, and sometimes radically.

Because there are so many different classes of cotton with highly specialized uses, the futures market is ordinarily an unsatisfactory place in which to buy and sell spot cotton. Those who deal in spots have found a way to use the price-making facilities of the futures market and at the same time carry on their spot business in another market better adapted to spot transactions. They use the futures

[18] Charter, Constitution, By-laws, and Rules, New Orleans Cotton Exchange, 1924, p. 13.

for two purposes primarily—as a guide in arriving at spot-cotton prices, or as a price-making instrument; and as a hedge, or a price-insurance instrument.

The futures market is used for insurance purposes primarily by merchants and manufacturers, and to some extent by growers. The insurance is not obtained in the form of a policy, but in a double transaction known as a "hedge." A hedge is a sale or purchase of a contract for future delivery against a previous purchase or sale of an equal quantity of the same commodity or an equivalent quantity of another commodity that has a parallel price movement, and where it is expected that the transaction in the contract market will be canceled by an offset transaction at the time the contemplated spot transaction is completed and before the future contract matures. Thus the dealer who buys 100 bales of cotton from a merchant and immediately sells them to a spinner is not hedging in the ordinary sense. Neither is the merchant in Norfolk hedging when he buys 100 bales of cotton and sells a future contract against it with the purpose of making immediate delivery. These are merely purchases and resales. The merchant who buys cotton hedges when he sells contracts for future delivery against his purchases which he expects to buy back when he sells the cotton. The spinners or others who make similar offset transactions are hedging. A perfect hedge is one where the loss or gain on the first transactions is equal to the gain or loss on the opposite or hedge transaction.

Suppose the spinner who has no orders but wishes to keep his mill running has an attractive offer of a desirable lot of cotton. He buys the spot cotton to spin at, say 20 cents per pound, and at the same time sells futures to the quantity of cotton bought at 20 cents. Six weeks afterward when he has the cloth finished he has an opportunity to sell it on the basis of the prevailing price of cotton, say 15 cents, and make his customary mill margin. When he makes the sale of the cloth he must at the same time buy back his futures. The spinner has evidently lost 5 cents a pound on his spot cotton, but he can buy back his futures at 5 cents a pound less; so he makes as much on his futures, or hedge transaction, as he loses on his spots, and his mill margin is undisturbed.

In normal times the bulk of the dry-goods business is done on cotton bought for foward shipment. Spring goods are often sold in August for January and February shipment. The cotton to cover such a sale is also bought for forward shipment and timed to meet the manufacturer's requirements. If an order of goods requires 500 bales, the spinner may ask that shipments be made in 100-bale lots every 15 days beginning September 1, to continue until the entire order is filled. If he covers such an order by hedging, he bases his offer on the price of futures for the hedge month and buys the required number of contracts to cover his sales. His cotton account would show somewhat as follows:

August 1, 1923, sold goods for January–February shipment requiring 500 bales Middling 7/8-inch cotton.

August 1, bought five New York December contracts at 23.30 cents as a hedge.

September 1, bought 500 bales of M. 7/8-inch cotton f. o. b. mill at 26.30 cents.

September 1, sold five December contracts at 25.60 cents.

	Futures (cents)	Price of even-running spots f. o. b. mill (cents)
Prices Aug. 1, 1923	23.30	24.15
Prices Sept. 1	25.60	26.30
Gain on futures	2.30	-----
Loss on spots		2.15

Net gain on the double transaction, 15 points, or 75 cents a bale, from which must be deducted commissions for buying and selling futures.

The spinner may cover the above contract in other ways: (1) He may buy the spot cotton August 1 for immediate delivery. Ordinarily he does not; because, (*a*) it ties up his capital for too long a period, or (*b*) it takes him too long to make the selection, or (*c*) he does not know where that quantity of cotton of the desired quality can be had immediately, or (*d*) he does not have warehouse space to accommodate the cotton, or (*e*) he fears that the order for goods might be canceled, thus leaving the spot cotton to finance or sell, which requires more attention and moves less readily than contracts for future delivery. (2) He may buy the specific grade on description from a merchant at 24.15 for forward delivery, to be shipped as may be agreed upon by the contracting parties. In this type of transaction the responsibility of hedging and the risks of changes in basis fall upon the merchant. Much business is being done in this way. (3) The spinner may buy from a merchant by fixing the difference between the price of contracts and the price of spots, f. o. b. a named point, and do his own hedging. Thus in the above case the price would be 85 points on December. In this instance it is desirable to fix the price immediately. If the spinner does his own hedging, he buys five December contracts. If the cotton merchant is to do the hedging, on the spinner's call the latter calls immediately, and the merchant buys the December contracts. This type of business is little used to cover sales of goods already made. It is used a great deal where spinners have not sold goods forward, but wish to accumulate a desirable lot of cotton in anticipation of orders. This is only one way that the spinner may use the hedge.

The merchant obtains his protection against general price changes in much the same way as the spinner. It enables him to buy cotton without having made a previous sale, and to sell for forward delivery spot cotton which he does not have but which, in the normal course of events, he will have. On August 15 October futures may be quoted at 22 cents. The merchant through his local agent has an opportunity to buy 100 bales of cotton from farmers. He calculates the freight and other costs of delivering cotton and finds they equal 175 points. He figures he must have 25 points as a margin for doing business. The local buyer is given a limit of a flat price of 20 cents, or else of 200 points "off" the future. The merchant now sells one future contract, or 100 bales, as a hedge against the 100 bales bought in the local market. If the price of cotton goes down he loses on his spots, but gains an equal amount on his futures, which leaves his "merchant's profit" undisturbed. In practice, transactions are not so simple, nor is protection so perfect as given in the above illustration.

The merchant who sells to the mill for forward delivery at a fixed price must in turn buy futures as a hedge if he does not have spot cotton to cover the order. If he does have the spots, they are usually hedged by a sale of contracts, and the contracts are bought back at time of forward sale. If he should cover his sale for forward delivery by immediately buying the spots, a thing not often done, he would be "covering" but not hedging in the strict sense of the term. The merchant who has a good outlet for cotton, and who has a large force to assemble cotton, may supply manufacturers their needs by selling for forward delivery and in turn protect himself by a purchase of futures, which he sells as he buys the spot cotton to cover the order.

Thus, if in the above illustration the spinner had bought 500 bales of Middling 7/8-inch cotton on description from the merchant at 24.15 cents for forward delivery, the transaction would have been handled about as follows: The price would have been quoted as 85 points on December, which was then selling at 23.30, the price to be fixed by the spinner immediately. The merchant figures 50 points as cost of delivering the cotton to the mill and 35 points as his margin for doing business. The merchant does not have the cotton, so he buys five December contracts and holds them until he buys the spot cotton. Suppose he buys 100 bales August 25 at 24.30 cents, f. o. b. shipping point, and it costs him 50 additional points to deliver to the mill, and he sells one December contract at 24.40.

His account for the 100 bales would close out with the following results:

	Futures (cents)	Spots (cents)
Price of even-running cotton f. o. b. mill	-----	24.30
Cost of hedge Aug. 1	23.30	-----
Price of even-running cotton f. o. b. shipping point	-----	24.15
Price of December contracts Aug. 25	24.40	-----
Profit on contracts	1.10	-----
Loss on spots	-----	.15

	Points
Gross profit on contracts	95
Cost of delivery to mill	50
Net margin for doing business	45

The cotton grower may use the future market by selling contracts against his anticipated crop and thus fix his price. On June 24, 1924, December contracts were selling, say 25 cents. If the farmer expected to grow 100 bales and wished to hedge or fix his price, he could have sold one contract in New York or New Orleans. When the cotton was picked he could either hold it until December and deliver it on contract through his broker or sell the spot cotton in the regular way and immediately buy back his December contract. Not a large amount of this type of business is done at present. The farmer ordinarily needs in making the crop the money that would be required for margins and the risks of crop failure are too great for individuals to go it alone.

The exchanges provide a continuous and liquid market. This characteristic is largely the result of giving professional risk takers, speculators, and the public the most convenient means for trading in

the risks incident to price movements. Transactions are in terms of margins, which makes possible the handling of many more bales in the form of future-delivery contracts than would be possible with the same amount of money in spot cotton. The volume of transactions in future contracts on the New York exchange for the year 1921–22 was approximately 80,000,000 bales, and on the New Orleans exchange about 40,000,000.

The liquidity of the future contract rests essentially on the fact that personal risk has been largely eliminated. Each member deals with all the others indiscriminately. The obligations of the contract are made transferable through offsets and substitutes in the clearing house. Personal risks are provided against in several ways. There are comparatively few members, and they are selected with considerable care on the basis of integrity and financial responsibility. The exchange has strict rules governing a highly standardized transaction. Each is required to margin his net position as a protection against losses due to adverse price changes. If a loss should occur through failure, the assets of the failed member in the hands of the exchange, such as value of membership and the guaranty fund deposited by the member, are used to pay the loss. If these are insufficient the guarantee and reserved funds are used and, finally, assessments may be made. The broker assumes entire responsibility to other members for the accounts of his clients on the outside. The exchange, as such, assumes no liability for connections with nonmembers.

Thus, while most of these contracts are settled without delivery and receipt of spot cotton, one can always demand and receive spot cotton on the contracts he buys. In fact, he must receive it if he hold his contract, and he can deliver as many bales as he sells and must deliver or buy back or otherwise satisfy all the contracts sold.

The exchanges perform a number of other functions, such as the collection and publication of statistics of prices, supply, movement, and demand of cotton, and they provide and enforce rules for the conduct of the business and for the settlement of disputes.

RULES GOVERNING OPERATION OF EXCHANGE

The general privileges and limitations in the operations of the exchange are prescribed by its charter of privileges, its constitution, its by-laws, and rules laid down by the Government. Detailed operations of buying and selling cotton are governed by rules worked out by the exchange, not in conflict with the above privileges and limitations. This body of rules has a section dealing with transactions in contracts for future delivery of cotton and another with those involved in making spot deals. The rules governing spot transactions need not be discussed here.

CONTRACT FOR FUTURE DELIVERY OF COTTON

Transactions in contracts for the future delivery of cotton are governed by defined rules. The contract, the foundation of the future business, is virtually prescribed by the United States cotton futures act. Various regulations governing the operation of the futures market itself are also prescribed by the Secretary of Agricul-

ture under his authority as the administrator of the act.[19] In practice the American exchanges use only one contract. It is known as section 5 contract, taking its name from section 5 of the United States cotton futures act.

The contract is what is known as a "basis" contract. This means that one grade is specified in the contract of sale but that other grades may be tendered in settlement of it, provided the rules of the exchange and the regulations of the Secretary of Agriculture are complied with. No grade may be specified as the basis grade for delivery that is not deliverable under the cotton futures act, and if no one of those deliverable is specified, the law provides that Middling shall be deemed the basis grade. In actual practice all contracts are basis Middling contracts.

The object of the basis contract is to give the seller every opportunity to fulfill his obligations. The difficulties of performance are thought to lie particularly on his side. The seller is supposed to get no money value advantage out of it, and does not if the differences established for grade are truly commercial differences. In fact the seller is now forced to carry the risks incident to changes in the value between grades from the time he buys until the cotton is delivered.

The future, or basis Middling, contract is essentially a merchant's contract in so far as delivery and receipt of spot cotton is concerned. The mill wishes a specific description of cotton, and it has no assurance of getting it if it buys cotton on a contract and takes delivery of the cotton. The merchant, on the other hand, can take delivery, sort the cotton, and subsequently deliver to the different mills the grades desired. This detracts neither from the value of the contract nor of the exchanges. It merely shows that they are doing a specialized type of business, which may be all the more valuable because of its specialization, if it is used to perform only the functions for which it is designed.

In addition to the basis Middling contract, the law provides in section 10 of the act for a specific grade contract. This contract is never used, partly because the seller can not afford to take the risk, and partly because it is more satisfactory to buy specific grades in spot markets.

Staple cotton may be delivered against a basis Middling contract, provided it is of a deliverable grade. According to rule 14 of the New Orleans Cotton Exchange 25 points premium may be allowed at the discretion of the appeal committee on classification for cotton not less than $1\frac{1}{16}$ inches in length. In New York no premium is allowed for staple.

It is impracticable to execute the formal contract in the ring at the time the trade is made, so the rules provide that verbal agreements are deemed to imply all the provisions of the contract and shall have the same standing force and effect if notice of such contract shall have been given by either party during the day the contract was made. These verbal agreements are noted on a memorandum slip or card, and later in the day signed by the contracting parties. The card is printed as a sale on one side and a purchase

[19] U. S. Dept. Agr. Service and Regulatory Announcements, Nos. 82 and 91.

on the other. The card gives a complete account of the transaction. To complete the record of sale it is necessary for the seller to sign the buyer's card, and the buyer, that of the seller.[20]

PERSONNEL

The membership of the exchanges dealing in futures is made up of persons scattered throughout the world. Less than one-third of the members actively participate in the business on the floor of the exchange. All members do not transact the same type of business. Some firms confine themselves to orders originating in the conduct of their own business. Other individuals and firms do a brokerage business entirely. Other persons and firms handle business both for themselves and for their clients. Much of the actual trading around the ring is done by "floor brokers" and "floor traders" rather than by the men who really manage the business.[21] The successful execution of orders in a busy market requires skill, which these brokers acquire to a high degree. They are paid the commission charged members, and are responsible for all orders until they notify the member with whom they have traded who the principal is.

MONTHS TRADED IN

Contracts for the future delivery of cotton may be entered into for any month of the year but the months that are always active are October, December, January, March, May, and July. August and September are sometimes active, and the others are never. The near month is the next active month from date. The current month is the present month and is only of special significance when it is an active month. Trading in the current month must cease at noon on the last business day upon which transferable notices may be issued, which, under the present law, is five full business days before the close of the month. By a rule recently adopted, trading on the New York Cotton Exchange in the current month on and after December, 1925, will be discontinued on the tenth day of that month.

KINDS OF TRADES

Members may buy and sell on their own account, or they may buy and sell for their clients. The transaction may be made (1) to hedge a spot cotton transaction or sale of goods, (2) as an arbitrage or straddle transaction, (3) to deliver or receive spot cotton, and (4) as speculation. All transactions must be by outcry across the ring if they are to be reported or recorded in the record of transactions. This does not mean that all orders received by a firm are executed across the ring. If a firm receives two orders simultaneously, one to buy and the other to sell, it is the practice of some firms to give each the board price at the time. Trading or offering to trade in futures by members of the exchange except on business days and during the hours of business is prohibited. A member can not take his clients' orders to account. He can neither buy nor sell

[20] Rule 45 of the New Orleans Cotton Exchange. See also p. 33.
[21] HUBBARD, WILLIAM HUSTACE, COTTON AND THE COTTON MARKET, pp. 246–249.

to himself nor to any member of his firm. Dealing in "puts" and "calls" on the floor of the exchange is forbidden.

In trading for their clients, members are called upon to execute several different kinds of orders. The most frequent order is known as a "market order," which means that it is to be executed immediately at the best price obtainable. The client, for instance, instructs the broker to buy two Octobers (200 bales). When it is done he wires: "Bought two Octobers at 28.10." There are various kinds of "limited orders." It may be to buy or sell a named month at a stated price or at a designated time. "Stop-loss orders" are not infrequently given in periods when wide and rather rapid fluctuations are taking place. The buyer or seller, as the case may be, sets a price at which he wishes his contract closed out, should the rise or decline reach that point.

"Switching orders" are used, especially by merchants carrying an unsold stock of cotton. They merely move the hedge from one month to another that may offer more favorable terms. Likewise he may switch his hedges from one market to another.

"Conditional orders" are placed with a broker pending the issue of certain events. The order may be to "buy December if the Government crop report for September 25 shows a condition of less than 57." Finally there are "discretionary orders," orders to buy or sell, as the case may require, at the time and price the broker thinks best. Some firms refuse to execute discretionary orders.

The price of all sales for all contracts for the future delivery of cotton must be reported promptly by the seller to the collector of the exchange, giving the exact time and terms. Transactions out of line of bids and offers and those not entered into by an outcry across the trading ring are not recorded.[22]

THE FUTURES MARKET IN ACTION

Opening calls.—The futures markets in New York and New Orleans are opened for business at the prescribed hour by what is known as calls for the purchase and sale of cotton for future delivery. In addition to the opening and closing calls there are two other calls during each full day; one between 11 and 12 a. m., and the other between 12 and 1 p. m. The calls are by months beginning with the current and continuing until each calendar month shall have been called. After opportunity has been given for making bids and offers for each month, the members are privileged to trade in any month at any time. Most of the trading is done between calls.

There is no essential difference between trading under call and the ordinary ring trades. In case of the call, the offer to buy or sell is repeated by the superintendent of the exchange. It is like an auction in that anyone has a right to accept the offer or make a counter offer, but it does not involve the original offer, and offers are made at a definite price. The first man who accepts the offer to buy or sell closes the contract, regardless of subsequent offers. Trades between calls are essentially the same except that they go directly across the ring between buyer and seller. An offer across the ring may be

[22] Rule 41 of the New Orleans Cotton Exchange, 1920.

accepted by anyone. Orders to buy or sell all or none are not permitted, but in case a partial and a total acceptance come simultaneously, the latter is given precedence.

Making the purchase or sale.—Only members or their designated agents can execute contracts in the futures market. An outsider who wishes to trade in futures must execute his orders through a member of the exchange. The amount of the commission is fixed by the rules of the exchange. The amount and method of putting up margins with the broker is a matter of private arrangement. When these details are arranged, the client gives the broker the kind of order he sees fit. If he is away from the market, he wires, usually in code. His wire must state whether purchase or sale is desired, the kind of order, the number of contracts, and the delivery month. Immediately after the order is executed the broker wires the client the results as: " Sold two Octobers 25.20."

When the broker receives the client's order, he proceeds to execute it at the first opportunity. Normally, it is delivered immediately to the firm's representative in the ring. If it is a sale he calls the month, indicates the number of contracts with his fingers, and pushes his hands away from him. If he is buying, he moves his hands toward himself.

MARGINS

The buyer or seller of a future contract is required to deposit a certain sum of money subject to the claim of the one with whom he is dealing in case of and to the extent of adverse price fluctuations. This is known as a margin and is essentially a trading balance deposited by one firm with another as a guarantee against loss due to fluctuations in the market. The "original margin" is a lump sum of a specified number of dollars per bale which must be deposited in an approved place and, in case of and to the extent of an adverse movement in price, subject to the demand of the opposite party to the contract. The supplementary or trading margin is put up to offset adverse price changes. For example, the party to a contract that is losing because of changes in price may be called upon to put up an additional amount to cover the variation in the market, or the amount the original margin has been impaired.

The size of the original margin is determined by the board of directors within certain limits prescribed by the rules of the exchange. They can change the amount of margin required on 24 hours' notice. The limit, as provided by the rules of the New York exchange of February 1, 1924, was from $1 to $5 per bale. The margin is put up with the clearing house on the net short or long interest plus some additional amounts for straddles, or for conditions where prices of one month are out of line with other months.

The amount of the variation margin depends on the fluctuations of the price. The bid prices for the calls for each month are posted daily, except Saturday, at one-half hour after opening of the exchange and at 1 p. m., and these govern all calls for variation margins. The time of putting up such margins varies with the time they are called and the length of the business day. On all business days except Saturday, for instance, variation margins called before 12

o'clock shall be deposited one hour before the close of the exchange. The price which governs is the one established by the midday call and posted about 1 p. m.,

The size of the margin required by different members of the exchange for their customers on the outside, and the accommodations given, are not uniform. One important firm in June, 1924, was requiring an original margin of $15 per bale. This margin had to be kept good. Such a margin was required by the above firm when the original margin was impaired as much as 25 points or $1.25 per bale. If the price change is to the interest of the customer, some firms permit him to draw down his profits if he is a good client, and especially if his business is in the nature of a hedge rather than a speculation. When a member executes a client's contracts he must take care of the required margins with the clearing house as though he were the party at interest and not a mere broker.

THE CLEARING HOUSE

The clearing house is not technically a part of the exchange. It was organized by the members of the exchange for their service only. (1) It clears money values on differences, (2) it clears the contracts, and (3) it guarantees, in a measure, against loss. The clearing house system was first used in New York and applied only to money values or differences. In 1915 the system was modified to include contracts and the guarantee features. New Orleans adopted the clearing-house system of settlement in the spring of 1924.

The principles of a commodity clearing house are essentially like those of a clearing house for banks, except for the insurance features. The contracts executed during the day are all properly signed and exchanged with the different members with whom business has been done. When this has been done, each member makes up separate lists of sales and purchases by months. The totals from these sheets are transferred to what is known as the clearing-house sheet, which not only summarizes the business of the day, but in addition shows the amount carried over from yesterday, the amount carried over for to-morrow, the settling price, the financial statement, and the margin requirements.

When the documents are made up and balanced, the check is attached to them and sent to the clearing house, which assumes the obligation of buyer to the seller and of seller to the buyer. The actual contracts are cleared on the principle of earliest date, highest price. The settlement price is fixed by the quotation committee and must be within 10 points of the bid price at the close of the day.

SETTLEMENT OF CONTRACTS

Broadly speaking, future contracts may be settled by "offset"; that is, by buying back or selling contracts previously sold or bought; or they may be settled by the delivery or receipt of the required number of bales of spot cotton to cover the contracts previously sold or bought.

Offset method.—Most of the contracts for the future delivery of cotton are settled without the actual delivery of spot cotton. The

nonmember who buys or sells through a broker has nothing to do when he wishes to get out of the market except to order his broker to sell or buy the same number of contracts as are in his outstanding obligations. When the "undoing" transaction has been made, the broker renders the customer a statement which shows the number of contracts bought and sold, the time of execution of orders, the prices, the commission of the broker, the amount of the Federal tax, and the net gain or loss rendered to the customer.

The members of the exchange can likewise even up their position in the market, as they can buy as many contracts as they have sold for a delivery month or sell as many as they have bought; but members and nonmembers balance their accounts differently. The outsider deals only with his broker, and his position is determined entirely by himself. The broker, on the other hand, is dealing with many other brokers and probably for several clients, some of whom may be long and some short the market. Since the nonmember can not enter directly into the market, the broker in the matter of margins and settlement for all contracts must assume entire responsibility to the member of the exchange with whom he deals.

Each member is interested in knowing that the liabilities of the other members are either protected by margins with the clearing house or by offset contracts. The broker who has sold as many bales for one group of clients for a given month's delivery as he has bought for others, is technically out of the market and has no responsibility to other brokers other than that he must pay or receive the net gain or loss on the day's settlement price. When this is done, his contracts are cleared back to him. He has no margin to put up; for he is even in the clearing house, and other brokers are protected.

The broker is still obligated to his clients on the outside, especially to the extent of making sure that each carries out his obligations, and of personally making good to clients any losses caused by the failure of other clients to carry out their obligations.

The member who is long, or has bought a contract, may settle it without receiving the cotton, even after a notice of delivery has been issued. When the holder of such a contract receives notice that the opposite party to the contract, the short, intends to deliver the cotton in settlement, the holder of that contract may transfer it to another party to whom he has sold a contract for delivery in the same month, or if he had not made such a sale at time of receipt of notice, he has 15 minutes within which to make such a sale and transfer if he wishes.

Delivery method of settlement.—The second method of settling a futures contract is by delivery of the cotton. If the party who has sold a future contract wishes to settle it by delivering cotton against it, he may do so. The buyer likewise may force delivery by holding his contract until the last notice day of the month. The cotton futures act provides that five full business days' notice of intention to deliver must be given the buyer. If the seller wishes to deliver on the first day of the month he must issue his notice about the twenty-fifth of the preceding month. This is known as the first notice day. In any event, he must issue it not later than five full business days before the last business day of the month; that is to say, on what is known as the last notice day. The nonmember must deliver or re-

ceive cotton through a member. There are firms which make a specialty of delivering and receiving cotton for clients. Other members of the exchange may also hire these firms on commission to handle this particular phase of their business.

DEMAND

The broker who "stops" a transferable notice must issue to the firm issuing the notice what is known as a "demand." It serves as a notification to the seller to whom to deliver the cotton. It must be stamped and numbered by the secretary of the exchange and returned to the member issuing it before 4 p. m. (except Saturday at 2 p. m.) on the day previous to the day delivery is due thereon, and shall be accepted as a legal demand for the cotton.

WHAT MAY BE DELIVERED

The rules of the exchanges and the cotton futures act specify that only good merchantable cotton may be delivered. Its grade must be of or within the 10 deliverable grades prescribed by the cotton futures act. It must have a staple length of seven-eighths inch or longer.[23] If grades other than Middling are delivered, the buyer must pay the commercial premiums, or "on," for the grades above Middling; and he receives the commercial discounts, or the "off," for the grades below Middling. In compliance with the United States cotton futures act, the amount of the "on" or "off" is determined in New Orleans by commercial differences prevailing in that market. In markets like New York, where the sales of different grades are not sufficiently numerous to establish a spot market, the law requires that they shall be made up by taking the average of the commercial differences in not less than 5 of the 10 southern spot markets designated for the purpose by the Secretary of Agriculture. These markets are (1924) Augusta, Dallas, Galveston, Houston, Little Rock, Memphis, Montgomery, New Orleans, Norfolk, and Savannah.

ELEMENTS OF GOOD DELIVERY

The rules for making the physical transfer of the cotton and what constitutes a good delivery are set forth at length in the rules of the exchange, subject to the requirements of the cotton futures act and the regulations of the Secretary of Agriculture. The New York Cotton Exchange and the New Orleans Cotton Exchange provide that the cotton must be in the city in which the market is situated and in not more than two approved storage places. The delivery is made by handing the purchaser a receipt from an approved warehouse for the required number of bales and an invoice of weights, grades, and prices. Such receipt must be signed by the warehouseman, indorsed by the member in whose favor it is drawn, and be free from any press, warehouse, or insurance charges. The cotton must have been inspected, sampled, and weighed by the inspection

[23] U. S. Department of Agriculture Service and Regulatory Announcements No. 91. Regulations of the Secretary of Agriculture under the United States cotton futures act. In addition to this see also Appendix I of the same, containing the text of the statutes as amended.

bureau of the exchange, the first two operations being subject to the regulations of the Department of Agriculture. All warehousemen, pressmen, assistant inspectors, weighers, and samplers must be licensed or approved by the board of directors. These licensees are under the direct supervision of committees appointed by and responsible to the board of directors. At least one member of the board must be on each committee. The warehouse receipt must be accompanied by a certificate of grade and staple issued by the United States Department of Agriculture for the exact bales represented in the warehouse receipts. Not less than 49,500 pounds or more than 50,500 pounds can be delivered against any one contract. If the cotton has not been certificated and is delivered on a seller's validated notice of grade pending formal certification, the receiver pays only 90 per cent of the price and deposits the balance with the secretary of the exchange for final settlement.

SETTLEMENT PRICE FOR COTTON DELIVERED ON FUTURE CONTRACTS

At the close of each day the superintendent of the exchange must post on the bulletin of the exchange the price at which transferable notice shall be issued on the following day. The price for Middling must be within 10 points of the closing price for like deliveries.[24] On receipt of the warehouse receipt and certificate of grades, the buyer must at once give the member presenting same a certified check for the cotton at the price of the transferable notice, with additions or deductions for grades delivered above or below Middling. These differences are those quoted the day prior to issuance of transferable notice, or six business days prior to the date of delivery.

The settlement price for Middling is not the one stipulated in the original contract, but the seller receives the original price in the form of the settlement price, plus or minus differences which have been received or paid in clearing-house balances. The nonmember making delivery receives through his broker the original contract price for Middling. In case he has lost in the trade, he evens his position with the broker by forfeiting margins. Differences "on" and "off" for grades are determined in the same way for the nonmember as for the member.

COSTS OF DELIVERING COTTON ON FUTURE CONTRACTS

The costs for delivering cotton in liquidation of future contracts vary from time to time and according to whether the deliverer is a member of the exchange.

The number of future contracts liquidated by the delivery of spot cotton varies from year to year and from month to month. Cotton may be delivered on contract because prices of contracts are forced above the value of spots by what is known as a "squeeze." The holder of a particular lot of cotton may not be able to make a satisfactory sale of it in the spot markets and may close it out by delivery. It may be delivered for the purpose of more readily bringing about price adjustments; that is, a large volume of spot cotton

[24] New Orleans exchange rules, 1920, p. 99.

thrown on the futures market has much more weight there on price than when left in the spot markets and carried by hedges. There are many, especially outside speculators, who are willing to buy contracts without having the facilities to handle spot cotton to advantage.

FINANCING FUTURES MARKETS

The speculative contract for the purchase or sale of cotton for future delivery has no element of security to serve as the basis for financing itself. It is handled on a narrow margin. The warehouse receipt or bill of lading does not exist for such a contract. The transaction must be financed with the individual's own cash or funds secured by borrowing on collateral independent of the contract bought or sold.

The amount of money needed by the borrower varies widely from day to day. Call money is best adapted to such business. The borrower pays interest on his daily balance. In normal times call money is the cheapest to be had. The borrower deposits bonds, stocks, or other evidences of property as the basis of his security.

The seller as well as the buyer puts up margins. On the part of the buyer the margin put up may in some respects be looked upon as a partial payment for the cotton, and if he receives the cotton it actually turns out to be so. The seller's margin, which is like that of the buyer in every respect, cannot be considered any more than a guaranty against losses due to adverse price changes or, if it works out into delivery, of complete performance. The thing to be financed, then, is not the value of the actual bales involved, but the width of the probable price change.

Since the financial standing of the outsider is not always known, the firm protects itself by requiring an original margin and additional margins whenever price changes impair the original. If additional margins are not put up within a specified time, usually about one business hour after being called for, the broker may liquidate the contracts.[25]

The future contract bought or sold for hedge purposes limits the losses which may accrue to the broker, for the losses on one side tend to be offset by gains on the other.

CENTRALIZING OR LARGE SPOT MARKETS

CHARACTER AND LOCATION

The centralizing markets are the great reservoirs of spot cotton. They may be in the territory or country which grows the cotton, or at ports or other centers with advantages for assembling, carrying, and distributing cotton. The dealers and merchants in the spinners' markets who supply the needs of the mills draw their supplies directly from the centralizing markets. Nearly every bale of cotton grown passes through them. When cotton is sold by the growers in the local market it goes immediately into the centralizing market, especially in so far as ownership is concerned.

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[25] By-Laws and Rules of the New York Cotton Exchange, Nov., 1920, pp. 72–76; or Charter, Constitution, By-Laws, and Rules of the New Orleans Cotton Exchange, 1920, pp. 125–127.

The centralizing markets for American cotton in the United States are mainly the cities in the cotton territory of the South and Southwest. The following cities are usually considered as large markets: New Orleans, Dallas, Houston, Galveston, Memphis, and Savannah. There are many others, such as Norfolk, Atlanta, Little Rock, Oklahoma City, Waco, Fort Worth, Columbia, S. C., Raleigh, Greenwood, Miss., St. Louis, Augusta, and Montgomery, which are the headquarters of important firms and in which branch offices of other large firms are located. There are many other centralizing markets which do a large business, such as Helena and Pine Bluff, Ark.; Austin and Paris, Tex.; Meridian, Miss.; and Macon, Ga.

Men who perform the services characteristic of this type of market are called merchants and shippers. They buy cotton from buyers in the local markets and from the growers and sell it to dealers, mills, and foreign importers. In addition, there are a few cotton factors who represent large growers, small-town merchants, and others, who sell to the merchants and shippers, and there are a few f. o. b. dealers and commission men who usually represent local buyers and large planters but who will buy or sell for anyone.

ORGANIZATION

The centralizing markets are city unit organizations, but the firms that constitute the organizations have connections running both into the spinners' markets on the one side, and into the smaller concentration and local markets on the other. The larger firms do not confine their activities to a single market. Some of them accumulate large stocks of cotton. These large firms have partners, branches, or representatives in most of the important centralizing markets.

To carry their cotton until it is needed, the merchants do a great deal of hedging. The larger ones have membership in one or more of the futures markets. They maintain branches, partners, agencies, or other connection in all important spinners' markets. From the few large firms there are gradations down to the firm or individual who operates in only one of these central markets. The small firms sell to dealers in spinners' markets or to the larger merchants and exporters. The small operators are in the majority in numbers but not in percentage of total business transacted.

The statement of the purposes of the Houston Cotton Exchange, as given in its charter, is fairly typical. It says:

> The purposes of this association shall be to provide and maintain suitable rooms for a cotton exchange and board of trade in the city of Houston, to inculcate just and equitable principles of trade and commerce, establish and maintain uniformity in the commercial usages of the city; to acquire, preserve, and disseminate valuable business information; to adopt rules, regulations, and standards of classification which shall govern all transactions connected with the cotton trade, and with other commodities where standards are required; and generally to promote the interests of the trade and increase the facilities and the amount of business of the city of Houston.[26]

The requirements for membership vary somewhat between associations. The organization is maintained by fixed annual dues, and fees are charged per bale on all cotton bought by the members, with the occasional exception of transactions between members.

[26] Constitution, By-Laws, and Rules, Houston Cotton Exchange and Board of Trade.

The business of these organizations is conducted by a president, a secretary, a treasurer, and a number of committees. The usual committees are those on membership, information and statistics, finance, quotations, insurance, classification, grievances, arbitrations, and appeals. Each exchange has a body of rules which defines the terms used, prohibits certain practices, prescribes the methods of doing business, and provides means for enforcing the rules. The rules are designed to standardize the business, to eliminate dishonest or detrimental practices, and to promote the best interests of the members.

FUNCTIONS

From the standpoint of marketing services the chief functions of those in the centralizing markets are: (1) To sell cotton in even running lots; (2) to assemble and class the cotton for shipment to spinners, either direct or through a dealer; and (3) to buy it from farmers and local buyers and carry it until it is wanted. To reduce his risk in performing this last function, the merchant ordinarily sells future contracts equal to the number of bales carried. These are sold from day to day as he buys the cotton.

The mill wishes to buy cotton in even-running lots. The merchants in these centralizing markets are in the best position to make such sales. They buy and assemble hundreds of bales, although they often store many at the small compress warehouse concentration points. The classing of the cotton into even-running lots on the basis of either private types or Government standards is done in the central market on warehouse samples.

The merchants in these markets carry a great deal of cotton. The mills may buy a large part of their supplies in the summer and fall, but have it delivered in small lots throughout the season. If the merchants have not sold their purchases ahead, they continue to buy and store the cotton, pending the time the mills come into the market. They thus carry the surplus which accumulates in the fall to other seasons or from one year to another. They are well situated to perform this service because they have access to the best warehouses, deal in large even-running lots, and are able to obtain favorable credit and insurance terms. These centralizing markets do most of the exporting or selling to exporters.

Some of the centralizing markets have a number of large cotton factors and f. o. b. sellers. The factor does not class the cotton and sell it in even-running lots. Each grower's cotton is sold "lot through" or in what are sometimes called "hog round" lots, to merchants and shippers. The chief function of the factor is to give the growers the services of a skilled salesman and the marketing facilities available in these markets. The f. o. b. shippers sell cotton in the primary markets from samples sent them by the owners, usually local buyers or large planters. In most markets they charge $1 per bale for their services. When the owner is satisfied with the price offered, he is notified where to ship the cotton and on whom to draw his draft.

PRICE-MAKING FORCES IN CENTRAL MARKETS [27]

Factors which determine price in the central markets are: (1) Price of futures, (2) volume and nature of mill purchases, and (3) freedom with which the grower parts with his cotton. The price of futures is the predominant factor. The degree of its control varies with different conditions. In a short crop year when mills buy considerable forward cotton and the spot movement is light, the futures are the least dominant. The trade expresses it by saying the basis is high, which means that spots are high in comparison with futures. The price to which spots may go above futures for the active month is limited only by the fear of not receiving the required cotton on a future contract to satisfy an even-running spot contract. Such a situation is likely to develop at the beginning of the season when the crop is late, or on a rapidly declining market.

Futures may go above spots because there may be more contracts sold and more purchasers asking for delivery than can be satisfied with deliverable spot cotton available in the particular market. This may happen because the deliverable cotton is pledged for forward delivery, or because the unusual demand develops so late in the spot or current month that it is impossible to deliver cotton from distant points. The last instance is known as "squeeze." These strained price relationships are more likely to exist when the world's volume of deliverable cotton is small. When spots may be bought at a price which will permit delivery against contracts without loss, the basis is said to be low, weak, or easy. If the buyer of spots is unable to hedge his purchase to obtain normal profits, he says the basis is high or strong.

MARKET TRANSACTIONS

There are three types of market transactions in the centralizing markets: (1) Sale to spinners, (2) transaction in futures, and (3) purchase of spot cotton. Either (1) or (3) may come first, but never (2) without speculation. The sale to spinners is given first because they often buy liberally of the new crop before the beginning of harvest. Heavy buying usually starts in August. The purchase is made for forward delivery. If the price is fixed by the mill at the time, the merchant who makes the sale protects himself with the purchase of a future contract. Sometime previous to delivery date he buys the spot cotton to fill the order, and, as he buys, he sells the futures previously bought; otherwise he would be speculating. As the season advances and the spot movement grows in volume, the order of sales is reversed. The spots are bought first, the hedges are sold next, and the sale of the spots to the mill and the purchase of hedges sold occur at a still later date.

BUYING COTTON BY FIRMS IN CENTRAL MARKETS

The merchant or shipper in a central market may buy his cotton in a number of ways. He may buy from brokers, factors, f. o. b. shippers, and other merchants in the market; or he may have an organization for buying in the primary markets. He usually does

[27] See also pp. 44 and 48.

both. The territory of a centralizing market is determined largely by transportation facilities and freight rates. The merchant operating in a given territory establishes connections in the various cotton markets in the territory, by arranging to furnish limits to local buyers and by scattering salaried or firm representatives at strategic points to buy cotton direct from local buyers and farmers and to take it up from those buying on limits.

The making of limits requires considerable attention, especially in a market where competition is keen. The limit is made up of two parts. The first and most important is the parity between futures and the price the buyer is to pay for spots. Thus the merchant might instruct his local representatives to buy at 150 "off" New York basis Middling. If no month is specified, it means the near active month. The second part of the limit is the "differences;" that is, the premium "on" for the better grades and staples and the discount "off" for the poorer grades and staple lengths under seven-eighths inch. The first part of the limit changes the price offered by the local buyer with the changes in the price of futures.

Thus if New York contracts are selling for 30 cents, the local buyers can offer 28.50 cents for Middling $\frac{7}{8}$-inch cotton. If the price of futures goes down to 29 cents, the local buyer reduces his price to 27.50 cents. The merchant may find that his local representative is unable to buy the cotton at 150 "off" and may be forced to buy on the basis of 125 "off," or even less. The second part, especially the differences for grade, is changed very largely as a result of weather. Weeks, or even months, may pass without a change, if the season is normal.

The merchant arrives at the limits he offers about as set forth below, provided he has not already sold his cotton on basis. The time, say is November, and December futures are quoted at 35.10 cents per pound. The cost of the freight, insurance, interest on funds tied up, the hedging costs and other expenses of delivering the cotton equals 150 points. The maximum he can pay without incurring risk would be 33.60 cents per pound. If he wishes a profit of $1 per bale, he will quote the limit at 170 "off" December, or 33.40 cents. If the merchant has sold cotton for forward delivery at, say 150 "on" New York for even-running Middling, he takes this into account in making his limit. He is in a position to offer a better limit than before, but he can not base it entirely on this sale of a specific grade, for the local buyer must take all grades as they come, and he may buy 1,000 bales before he obtains 100 bales of even-running Middling.

Changes in grade differences and staple premiums are often a source of loss or profit. The differences due to grade are controlled very largely by weather conditions during the picking season. On September 1, 1923, Low Middling was an average of 96 "off" in the 10 markets. On December 11 it had gone as low as 275 "off." The merchant who bought and hedged Low Middling without a basis sale to cover, almost certainly lost money on his low grades. During the same time Good Middling rose from a premium of 47 "on" to 122 "on." On the better grades the merchant will have made a profit.

In trading among themselves merchants make bids and offers in what they call "basis." It is always so much "on" or "off" the

futures price in the near active month or a specified month. The "on" or "off" thus includes the differences for grade and staple and the parity between spots and futures. These are the bargaining points for the merchants; because the rest of it has been fixed, if the cotton is hedged.

PRIMARY MARKETS

CHARACTER AND LOCATION

The primary or farmers' markets are the assembling points for the growers where they meet the cotton buyers. With the exception of a few instances in the case of large planters or in unusual years, the buyers never go to the farms to bargain for the cotton. In the western part of the Cotton Belt these markets are often called wagon markets. The cotton is hauled in by the farmers in the seed, and is taken to a custom gin. After it has been ginned and baled, it is hauled to an accustomed square or market street similar to that shown in Figure 5 and sold from the wagons. Every railroad station that receives any appreciable amount of cotton for shipment is a market place, and many interior villages off the railroads have their cotton buyers.

ORGANIZATION AND PERSONNEL

Only a very few of these markets are organized in the sense that there are any adopted rules governing transactions in them. Usually each buyer operates independently. To obtain an outlet for the cotton he buys and to have adequate price information, he makes connection with some firm in a central market which furnishes him price quotations and limits on which he bases his price paid to farmers. This kind of buyer is little more than an agent of the cotton merchant. There are other local buyers who buy and then sell to the one making the best offer. They may resell in the local market, or they may wire to buyers in one or more of the central markets and sell there.

Some of the buyers are in the market for the one purpose of making profit by their purchase and sale of the cotton. Others, especially supply merchants and bankers, may be buying primarily for purposes of collecting old debts or for advertising. In the larger local markets there is usually one buyer who represents a cotton merchant in a centralizing market. He buys some cotton direct from the growers, but he buys most of his supplies from the local supply merchant, banker, and speculator buyer at the close of the day.

PRICE MAKING IN THE LOCAL MARKETS

It has been shown that the futures market is the central price-making organism in the cotton-marketing world. It was shown that the price in these markets is based on the price of contracts in the futures market and that the cotton merchants in the centralizing markets in turn are the most important sources of converting the prices in the central markets into the price in the local markets. They do this by means of the limits they give to their local repre-

sentatives. It remains to be shown how the local buyers convert the limits into the prices they pay the farmers.

The limits given local buyers are given in different terms in different markets. If it is an important local market and the local representative knows the classification of cotton fairly well (1) he is given limits in terms of "ons" (premiums) for grades above Middling and "offs" (discounts) for those below Middling; (2) he is given the parity between spots and futures (see p. 58); (3) in the markets where considerable staple cotton is sold, he is also given limits "on" for extra staple lengths.

For example, the differences for grade may be quoted at 50 "on" for Good Middling, 25 "on" for Strict Middling, 50 "off" for Strict Low Middling, and 100 "off" for Low Middling.

The second part of the limit may be quoted at, let us say, 100 "off," basis Middling. If the merchant is paying the local buyer premiums for staple length, he will quote a limit of, let us say, 25 points on for $1\frac{1}{16}$ to $1\frac{1}{8}$ inch staple, 50 on for $1\frac{1}{8}$ to $1\frac{3}{16}$, and 75 on for $1\frac{3}{16}$ to $1\frac{1}{4}$.

The basic price from which the "ons" and "offs" are calculated is the price of contracts for future delivery in a designated futures market. The particular month varies, though usually it is the price of the near active month. The futures price is continually changing. The buyer is never advised of all these changes. The buyers in some of the more important local markets obtain from the telegraph companies what is known as the C. N. D. service (Commercial News Department reports of telegraph companies), which quotes the futures market at intervals of 15 minutes. In most cases the cotton merchant either telephones or wires his local representatives when the price changes are significant. The premiums and discounts for quality are changed less frequently.

If the limits are quoted f. o. b. cars at the local market, the buyer will arrive at the possible price he can pay as follows: Suppose that New York futures are quoted at 31.25 cents. The buyer goes out on the street to bid on a bale of Strict Middling full $1\frac{1}{8}$ inch staple.

	Cents	Cents
Price of futures	31.25	
Possible premium for Strict Middling grade	.25	
Possible premium for $1\frac{1}{8}$-inch staple	.50	
Total value in central market		32.00
Deduction on parity basis	1.00	
Deduction for tagging, drayage, etc	.25	
Deduction as buyer's margin	.25	
Total deductions		1.50
Price buyer can pay farmer		30.50

In many of the smaller local markets in the short-cotton territory, the local buyer is given a stated price as a limit. He is quoted a price, say of 30.50 cents. He may pay a little more than this for extra good bales and as much under that for the general run as competition will permit. It is in this type of market, where cotton is bought on the average, that the farmer has the least incentive for improving quality. The price is rarely quoted as standard, and

bargaining is rarely done on the classification of bales. The emphasis is placed on price and not on quality which increases immensely the problem of interesting the farmers in improved varieties and methods of handling their cotton. If the local markets are to be made to function properly, the price-making forces and the price-quotation service must be improved to the point that bargaining will be done on the classification of the cotton and not on price.

In the local markets the merchant often asks the farmer how much he is going to trade, and if a farmer has been a good customer of a supply merchant he expects this merchant to make the highest bid for the cotton. The grower's supply merchant or banker often tells him to get the best offer he can and come back, which means he will raise the bid 5 or 10 points, even though he has to take a loss on the cotton at the end of the day. Such methods of bargaining furnish little incentive for improvement in quality.

When the cotton merchant quotes the local buyer a definite price he observes closely the class of the cotton coming from the market to keep the price even with or below the average value of the cotton coming in. Even the cotton merchants in the central markets who have their local representatives buy on quality make up their limits with the idea of buying the cotton "safe" for premiums and discounts on grade and staple. Their take-up man follows the policy of classing the cotton full, especially if the market is declining. In the face of this, the local buyer, who is not an expert at judging the qualities of cotton, also follows the policy of buying the cotton "safe." By the time the price gets to the farmer the premiums for the better grades and longer staples are greatly reduced, are often entirely wiped out, and the discounts for low grades often become excessive.

The larger the local markets, the more nearly they are governed by the commercial value of the cotton. There are a great many markets which are more efficient than the types of local markets described yet they do not perform the characteristic functions of the centralizing markets. There are usually numbers of small cotton merchants or salaried representatives of large cotton merchants in such markets. A few of these markets have inaugurated a method of selling similar to the factorage system, which was once so popular in the centralizing markets. A take-up man of a merchant in a central market may live in one of the big local markets. Such a man is almost sure to lead the local buyers to pay premiums for the better grades and longer staples and to discount the low grades.

FACILITIES IN LOCAL MARKETS

The quantity and quality of the facilities in local markets vary widely. In many of them, especially in the western part of the Cotton Belt, the usual facilities consist of (1) a market square which is a vacant block near the center of the village, where the farmers drive their wagons with their cotton, (2) a cotton yard which is another vacant lot, where the farmer carries his cotton when it is sold, and (3) a public weigher equipped with a pair of scales on wheels, to weigh the bales when they are rolled off the wagons. Many of the local markets, especially in the eastern part

of the belt, have been equipped during the last few years with warehouses. In these markets the farmer often drives directly from the gin to the warehouse and leaves his cotton there. The warehouseman draws a sample from the bale and gives it to the farmer, who takes it to the market square and bargains on it for the sale of the bale.

SALE PROCEDURE

When the farmer receives his bale of cotton from the gin, he often takes it immediately to the market square for sale. By the time the wagon has stopped, a cotton buyer usually asks "What do you want for that cotton?" The farmer may set a price, but ordinarily he asks what the market is and how much the buyer will give. The buyer makes an offer. If it is satisfactory, which it rarely is, the bale is sold without being cut. If it is refused, the buyer samples the bale and makes a second bid. If this is refused, the farmer may make a counter offer, and a direct or compromise bargain is reached, but often he says he will "look around."

The next buyer sees that the bale has been cut, so he asks "what have you been offered for that cotton?" The farmer tells him his highest bid. The buyer draws another sample and raises or refuses to raise it. The amount of this dickering depends largely upon the farmer. Bargaining is done in terms of cents and fractions of a cent per pound. The fractions are usually expressed in terms of points or hundredths of a cent. Thus, an offer is written 25.40 where the price is 25.4 cents per pound.

When the sale is made, the farmer is given a "ticket," which states the date, name of purchaser, number or gin mark of the bale, and price paid. The farmer takes the bale to the cotton yard or local warehouse. It is weighed by a public weigher and a weight receipt is given him. These receipts are taken to the bank or other place designated by the buyer, and the amount to be paid is calculated and paid to the farmer.

FINANCING LOCAL MARKETS

The buyers in the local market are financed by the local bank. The buyer is required to deposit cash or other readily convertible assets with the bank sufficient to margin the volume of business he expects to do. The amount of margin required depends on many factors such as the personality of the buyer, the banker, the price, and the extent and rapidity of price fluctuations. In addition, the banker holds the warehouse receipts or other evidence of ownership and the insurance policy covering the cotton.

FUNCTIONS

The primary or local markets perform several important functions. (1) They begin the assembling process which is completed in the centralizing markets. (2) They offer the farmer a market with the least delay and trouble to him. (3) They give him some idea of the desirability of the cotton he is growing. (4) They give him an opportunity to bargain individually in the sale of his cotton.

(5) It is much more economical for the centralizing buyers to buy the cotton through local buyers in these markets rather than from the individual growers direct.

PROBLEMS OF THE PRIMARY MARKET

The two main problems of the primary market grow out of the limited volume of business on the one side and the inability of the farmer to know his product on the other. The volume of business in these local markets will not justify the cotton merchants in employing skilled classers to buy the cotton. Native bargaining ability is often the asset most desired in a local representative. Few of the growers can class their cotton and bargain effectively in its sale. Previous investigations have shown that the growers were not paid the differences prevailing in the centralizing and spinners' markets for superior grade, staple, and character of cotton.[28]

PRICE MAKING IN THE FUTURES MARKET

Two sets of forces determine cotton prices in the futures markets—those which affect demand for and those which affect the supply of cotton.

MARKET FORCES AND POSITIONS

The forces on the demand side exert their influence on the market through two channels. The first is through the purchase of cotton for consumption, and the second is through the purchase of cotton for speculation. The immediate price reaction is the same in kind, regardless of the parties doing the buying or whether they are buying cotton on the spot for forward delivery or for future delivery.

On the supply side, there are those who are offering spot cotton for immediate delivery and those who are willing to sell cotton for delivery at a stated month in the future, either on specific description or as futures, believing that they will be able to buy the actual cotton or its equivalent in contracts before the delivery date at a lower price. Sales of spot cotton may influence the price by supplying mill demand direct or through hedge sales in the futures market by the growers or by the merchants who buy from the growers.

The speculator who believes that the underlying forces will make for higher prices buys on that belief, hence represents a temporary portion of the demand in the market. In terms of market parlance, he "goes long" and is called a "bull." This buying tends to raise the price. The one with the opposite views, who sells futures or "goes short," represents a portion of the supply temporarily and is called a "bear." After the buyer goes long, his every effort is to force the price up and sell at the higher level that which he bought at the lower; but when he sells he increases the market supply, thus tending to put the price down.

On the other hand, he who sells short may thereby depress the price, but sooner or later must buy back the contract, or the spot

[28] Studies in Primary Cotton Marketing in Oklahoma. U. S. Dept. Agr. Bul. No. 36; also Relation Between Primary Market Prices and Qualities of Cotton, U. S. Dept. Agr. Bul. No. 457.

cotton to deliver against it; when he begins to buy back, he may raise the price about as much as his selling pushed it down. If he has misjudged fundamental demand and supply factors, however, the effect may not be equal in both cases. Intensive buying of contracts by an individual or group may push the price up, or selling of a like nature may push it down, but the speculator must sell as many contracts as he buys, or buy as many as he sells, thus exactly negating himself, unless he is able to anticipate coming marketing conditions and, even more important, estimate how the mass opinion of the market regarding them will be expressed in terms of price.

Since no buyer wishes to buy at a price greater than the true value, or vice versa, and since the true value is ultimately determined by the intensity of demand as related to supply, all information concerning these two market factors is immediately evaluated by the market and translated into terms of price. Information indicating an increased demand or diminished supply is bullish, since it tends to increase price; conversely, information indicating decreased demand or increase supply is bearish since it tends to decrease price and favor bear operations.

The market news may carry such expressions as, "the market is short" or "oversold," or "the market is long" or "overbought." Obviously this does not refer to the number of outstanding contracts on either side for they must be equal. The statement that the market is oversold means that a large percentage of the contracts outstanding have been sold by speculators rather than by hedgers. An overbought market is one in which the speculators hold a large volume of the contracts. When the speculators who have sold short, or bought long, buy back or sell out, as the case may be, they automatically cancel out of their operations the effects of further price movements, since what is lost on the sale is gained on the purchase. This is "covering." "Covering" usually means the purchase of something previously sold.

The forces of demand and supply exert their influence through the "spot market" and the "futures market."

PRICE MOVEMENTS AND THEIR CAUSES

Three price movements are distinguishable in the marketing of cotton: (1) The general trend of prices owing to changes in the general level of prices of all commodities, (2) the gradual change in the relation of the price of cotton to prices of other commodities in adjusting to increasing uses for cotton and improved methods of producing and manufacturing, and (3) shorter fluctuations which may be attributed to three causes: (*a*) The annual movement caused by changes in supply, (*b*) the changes caused by changes in business conditions—demand, and (*c*) the short-time movements caused by the technical position of the buyers and sellers in the market or to other causes.

The general level of prices changes from one period to another and explains a large part of the change in price of a commodity from one period to another. In 1896, for instance, the price of cotton was 7.9 cents per pound but at that was only 4 points less than the general average of all prices or, based on 1913

prices, cotton was 62 and all commodities 66. In 1912 the price of cotton had advanced to 11.5 cents per pound but was then 11 points lower than it was in 1896, when measured in terms of purchasing power of all commodities, for cotton was 90 and all commodities 101.[29] The change in price from 7.9 cents per pound in 1896 to 11.5 cents in 1912 was due largely to changes in the relationship between money and commodities. These changes may take place rapidly. The period from the beginning of the World War to 1920 illustrates such a rapid change.

Price index numbers like those of the Bureau of Labor Statistics, the Federal Reserve Board, and Dun and Bradstreet are the best indicators of changes in the general price level.

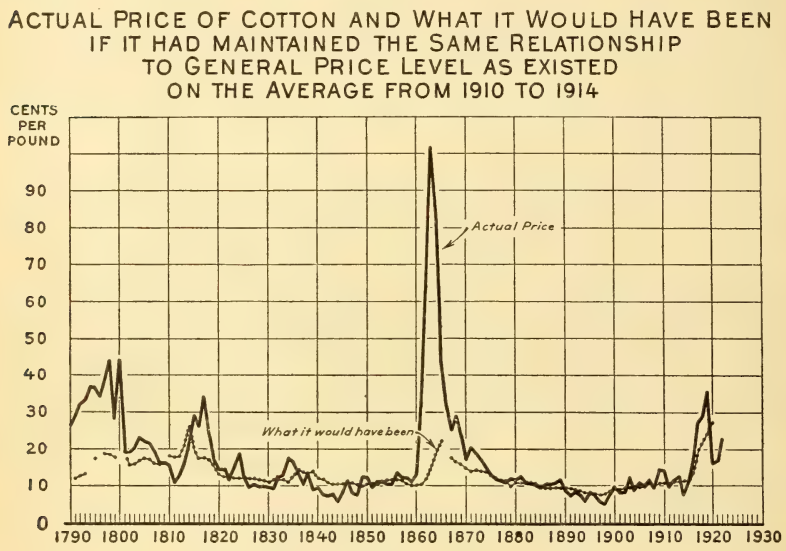
ACTUAL PRICE OF COTTON AND WHAT IT WOULD HAVE BEEN IF IT HAD MAINTAINED THE SAME RELATIONSHIP TO GENERAL PRICE LEVEL AS EXISTED ON THE AVERAGE FROM 1910 TO 1914
CENTS PER POUND
90
80
70
60
50
40
30
20
10
0
Actual Price
What it would have been
1790 1800 1810 1820 1830 1840 1850 1860 1870 1880 1890 1900 1910 1920 1930

FIG. 5.—The index used is that of wholesale prices in the United States, from United States Department of Agriculture Bulletin No. 999, page 2. The actual price is that shown in United States Department of Commerce Bulletin No. 153, Cotton Production and Distribution, pages 75–77

Figure 5 shows the actual price of cotton and what it would have been if it had maintained the same relationship to the general price level as existed on the average from 1910 to 1914.

Changes in price relationships may be due to changes on either the demand side or the supply side, or both. In the early history of the trade cotton sold at a higher price than wool. The invention of the saw gin and the consequent opening up of the vast areas in the Southern States cheapened the cost of production and tended to put cotton on a lower price level compared with other commodities. The cheapness of it multiplied its uses as clothing, as household furnishings, and as raw material in industry. For a century the increasing demand through multiplication and expansion of uses, was met by the ever-expanding supply, and for a large part of the time at de-

[29] Bureau of Labor Statistics No. 284, p. 131; and No. 149, p. 83.

clining prices. Since 1915 the trend of cotton prices is above its previous relation to other commodities.

There is no evidence of a slackening of potential demand. The spread of the boll weevil and other causes seem to have put costs of production on a higher level, thus forcing a change in price relationship. Figure 6 shows the relationship between the price of cotton and the price of all commodities for the years 1902 to 1922, inclusive.

Changing business conditions, usually referred to as business cycles, cause changes in the price of cotton through their effect on the ability and disposition of people to buy. To measure the influence of the business cycle on cotton prices it is necessary to separate its influence from that of the general price level on one side, and of changes in supply on the other.

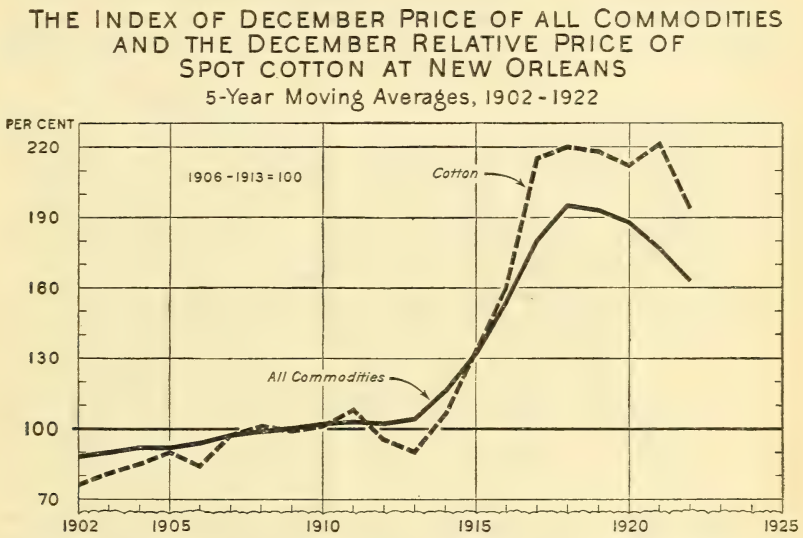

FIG. 6.—This chart shows the general tendency for cotton prices to follow the prices of all other commodities, the changes in relation from year to year having been smoothed out by the use of the 5-year average. The effect of the prevalence of the boll weevil is also evident in the relatively higher price of cotton in recent years

Figure 7 shows the relationship between the business cycle and the price of cotton.

The change in price due to changes in supply is essentially an annual movement, though it is not exclusively so. Supply in the sense used in the following discussion is made up of four items: (1) Carryover, (2) production of the current year, (3) prospective crop of the coming year, and (4) stocks of manufactured goods. Over a long period of time availability and volume of substitutional material should be taken into account. Each of these items varies in importance from one season of the year to another.

This discussion begins with winter, because there are fewer complications on the supply side of the price-making forces. By December the size of the current crop becomes fairly certain, and this, plus the carryover, makes up the supply of raw cotton for the season. The next crop is also a factor on the supply side, but its influence on

the value of spot cotton is negligible at this time. During the winter months the price is therefore largely a result of adjustments of a known supply to the strength of demand. This adjustment may be made early in the period and is usually made before the close of the period. The statistics of most value in this period are those showing (1) December estimates of production, (2) the carryover, (3) business conditions, (4) mill takings, (5) mill consumption, (6) stocks of dry goods, (7) activity in the dry goods markets, and (8) exports of cotton and dry goods.

The coming of spring brings with it the "pitching" of the new crop and adds an uncertainty to the supply side, which has an influence on the price of the old as well as the new crop. The price

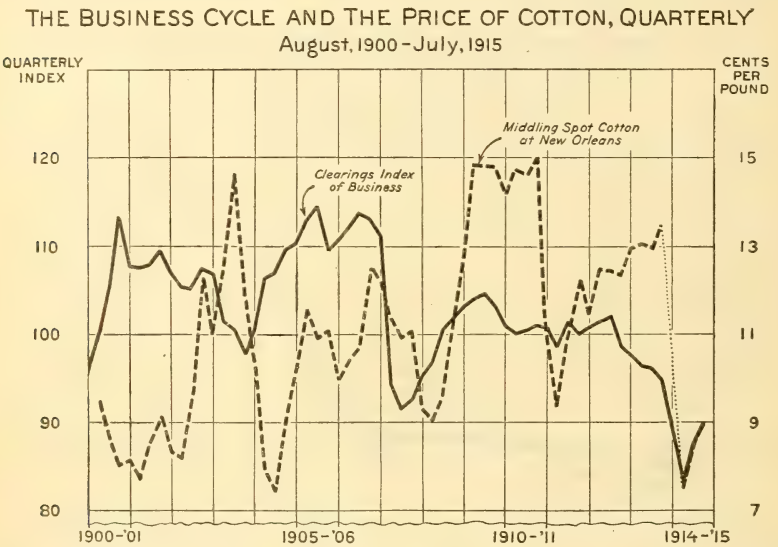

FIG. 7.—This chart shows the relation between cotton prices and an index of business activity based upon bank clearings. For clearings index, see Journal of the American Statistical Association, Vol. XIX, New Series No. 147, page 335, monthly index numbers being averaged to obtain the quarterly index. The cotton prices are the official spot quotations of the New Orleans market, a three months' average being taken

during this period is influenced by several factors, such as existing stocks of cotton and of goods, exports, and prospective crop. The figures of most significance are stocks of raw cotton, rate of mill consumption, stocks of dry goods, exports of raw cotton, probable carryover, prospective acreage, and weather and crop conditions. Reports of general preparation for planting, of planting progress, and of prevailing weather conditions are considered important toward the latter part of the period.

Throughout the summer months the market is particularly responsive to all influences affecting the growing crop, for the disposition of the old crop has become fairly certain. Government reports of acreage and crop conditions are the most important single factors. Among the day-to-day influences nothing approaches weather reports in importance. Indeed it may be said in a very true sense that

in this period the weather makes the price, especially if stocks of raw cotton are low.

The fall months present a very complex price-making situation, because of insufficiently accurate forecasts of supply and of the rate with which it will move to market. The figures of peculiar significance during this period are the prospective yield, the ginnings, the movement of the crop into designated interior towns and into export, weather conditions as affecting both production and quality of the crop, and mill takings. Each period must be studied separately. Winter is used in the illustration (fig. 9) because it is the simplest. It will be noted that only two items of supply have been taken into account. The figures for supply, for example, could be refined

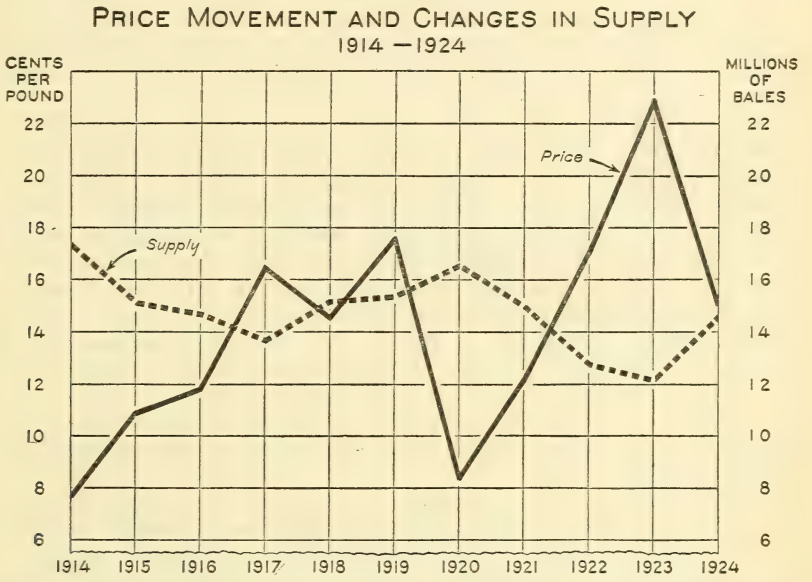

FIG. 8.—Winter prices reflect changes in supply. During this period, except in 1919, an increase in the supply, indicated by the December estimate of production plus the reported carryover on August 1, was accompanied by a decrease in prices in December and January. The prices used in the preparation of this figure are in cents of equal purchasing power; that is, the average price of spot cotton in New Orleans for December and January has been divided by the Bureau of Labor Statistics index number for all commodities, to adjust for changes in the general level of prices

by deducting consumption and exports from July to December and giving some weight to world production.

Figure 8 indicates the relation of the price movement to changes in supply.

Short-time fluctuations, the other price movement, is more or less irregular. The period covered by one of these movements, as well as its intensity, varies from time to time. This type of movement originates in or turns upon a wide range of causes or groups of causes, which may relate either to demand or to supply. The character of any particular movement will be determined somewhat by the technical position of the traders in the market. Each of the four groups in the market tends to adjust itself to every anticipated price movement.

Suppose, for example, a severe storm is approaching the Cotton Belt in September, which threatens to damage open cotton and probably to overflow important rivers. The short speculators may immediately try to cover their unprotected positions. In doing so, certain others must necessarily sell their long contracts, or go short. The long speculators may use the situation as a means of selling out to take their profit and thus prevent an advance, but ordinarily the price must advance to tempt sufficient sellers to supply the demand. If the event turns out to be of minor importance, the reaction from the advance comes quickly, and those who bought long will sell out and drive the price back down to about where it started. If the event really causes loss and deterioration and influences the spinners to do an unusual amount of buying, the reaction, when it comes, will not depress the price to an amount equal to the rise. If the rains prove beneficial rather than destructive and the buyers of spot cotton are stimulated to sell a larger volume of hedges on the rise, the price may even decline below the original price.

Sometimes these movements are much more pronounced and of longer duration than others. When the Government report was released on August 1, 1923, the market advanced about 200 points almost immediately. It continued to advance rather steadily until the latter part of September, 1923, when weather conditions seemed to indicate an improvement in the crop, rumors of the closing of mills began to be heard, and other similar news indicated that the mill demand was falling off. The rise in the price, and the height of the picking season, stimulated a volume of sales that played an important part in the reaction. On their books the speculators who had brought the price up had profits, but they had to sell in order to realize them. In their process of selling out to collect the profits they depressed the price in the latter part of September and the first part of October.

This example illustrates another important point to be observed in analyzing the short-term movements. Prior to August 2 there had been a marked decline in the price of cotton, probably because of bear speculation. A reaction was about due as a result of the efforts of the bears to take profits. Thus, what would probably have been a temporary reaction was turned into a strong bull movement because of unfavorable crop conditions.

A decline may be the result of profit taking on the part of long speculators, a movement of bear speculators selling for a decline, lack of interest on the part of mills and exporters, or to the pressure of a flood of hedges; and if it is a rise, it may be due to a movement of the bears to cover previous sales, a speculative bull movement, increased activity on the part of mill buyers, or the lack of offering of spot hedges in the market.

It is sometimes asserted that the speculator takes off the peaks and fills up the troughs in cotton price movements. This may or may not be true. The spot interests on the supply side of the market try to place their spot hedges at the crests of these movements, for declines usually leave them a profit in the "basis." The spot interests on the side of demand, the mill buyers, stay out of the market at such times and try to get in and make their purchases when the movement reaches the trough. The things, then, which are most lia-

ble to stop a bull movement in the short swing are the increased volume of spots offered for hedging and the decline in purchases by mills. The bear raid is checked by the increasing volume of spinners' purchases, and the lessening volume of merchants' sales. There are, of course, exceptions to the principles laid down. The spinner often buys at the top of the market, and the merchant hedges at the bottom. The spinner is governed largely by the yarn and cloth buyers and the cotton merchant is governed partly by the sales of farmers until he gets the cotton in his possession. Some merchants advocate selling on a rising market, whereas many spinners make it a rule to buy on a declining market or on the first stages of a rising market.

Figure 9 shows the short-term price movements in the New York market from January 30 to October 2, 1923.

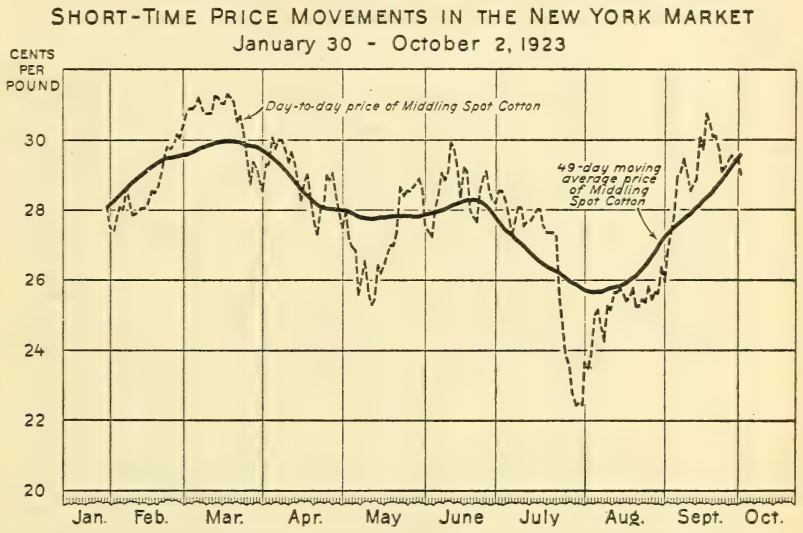

FIG. 9.—The comparison here made is between a 49-day moving average of the middling spot price for each day in New York and the actual spot price for each day from January 30, 1923, to October 2, 1923, inclusive. In the computation of the 49-day moving average Sundays and holidays have, of course, been omitted. The swing of the actual price around the average represents in a measure the short-term movements

TRANSITION FROM OLD TO NEW CROP

Interest in a new crop of cotton begins when sufficient facts are available to lay the basis for forecasting farmers' intentions to plant. Thus, while contracts for delivery in October, which is the first active month in the new crop year, may be bought on the exchange beginning on the first day of the preceding November, according to rules of the exchanges, little interest is developed in such contracts until after the beginning of the calendar year. These early transactions are almost entirely speculative, though a spinner may occasionally have need of such a market. They are based essentially on the price of the present crop, though long-distance forecasts of demand based on anticipated general business conditions, and probable supply based largely on farmers' intentions to plant as determined by prevailing prices, undoubtedly have some influence.

If prices are high in the winter and spring months, contracts for delivery in the following October will probably be at a discount. If prices are low and farmers discouraged, Octobers will probably sell for a premium over the old crop months. The amount of the premium is not usually more than the cost of carrying spot cotton from the old crop month, plus the cost of delivering it on October contracts. The amount of the discount has no such definite limits. On June 8, 1923, Octobers in New York had declined to 435 points below the average value of Middling spots in the 10 designated markets. This caused widespread curtailment of mill consumption, which in turn caused stagnation in the raw cotton market. Before

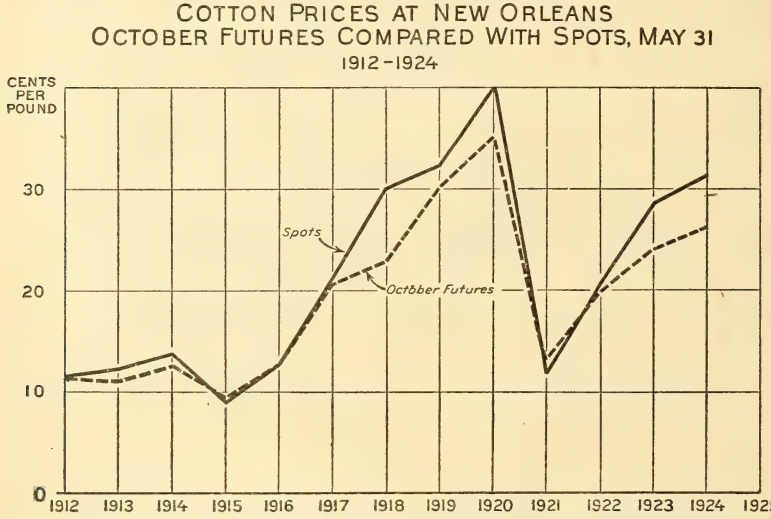

FIG. 10.—The price of cotton in the spring for delivery in October may be any amount below the value of spot cotton. A difference of as much as 10 or even 15 per cent is not uncommon, as in 1918, 1920, and 1924. The price of cotton in the spring for delivery on October may go above the price of spot cotton, as in 1921; but the difference in price should be no greater than the cost of carrying spot cotton. The prices used are the official daily spot quotations and closing quotations for October contracts of the New Orleans Cotton Exchange

the end of July the price of spots had been brought down to about even with Octobers at about 21 cents.

As the season advances into July, various figures become available as to crop conditions and acreage planted. If reports are such as to cause Octobers to sag, near months and spots may tend likewise to sag if the carry over is normal. If Octobers are above spots and reports are bullish, near months and spots tend to rise.

Figures 10 and 11 show the relationship between the price of spots and October futures on the last day of May and the last day of July of the years indicated.

July is the last active month in the old crop year. It is, therefore, the last month in which the old crop can be safely hedged. Cotton hedged in July must be sold by then, delivered against contract, or the hedge switched to October. It is technically possible to switch the hedge to August or September, but since these months are at

best only partially active, there is usually little support for the weight of contract supply. Such a thing is, therefore, hazardous and is ordinarily not done. In either case, the price of Octobers is the governing factor, if there is prospect of a normal carryover of deliverable cotton. Thus, if Octobers were at a discount in May and are declining in July, unplaced spots in July must decline faster than futures, so that at the close of July spots will be little, if any, above October futures, and under certain conditions must be low enough to be hedged in October. If Octobers start higher than May spots and continue to rise through July, spots will follow at least to about the hedge transfer basis.

After the last notice day in July, the remaining part of the old crop is transferred to the new crop year as carryover and with the new crop makes up the supply for the new year. Marketing inter-

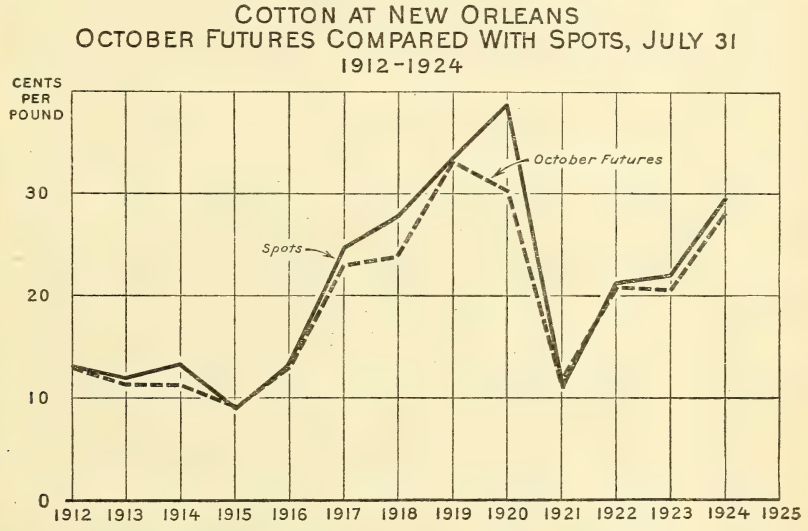

FIG. 11.—Prices of spots and October futures were usually closer together on July 31 than on May 31. The prices used are the official daily spot quotations and closing quotations for October contracts of the New Orleans Cotton Exchange

ests turn decidedly to the two months, October and December. Up to this time contracts for fall delivery have been bought and sold largely by speculative buyers and speculative sellers.

In July and August a third group, the spinners, ordinarily become interested in the new crop from the standpoint of purchase. It is the time they begin to make contracts to supply spring goods. The market for the new crop is thus definitely broadened, especially under normal conditions of demand and supply.

Spinners may hedge their commitments on the new crop prior to its harvest, in two ways. They may go into the market and buy future contracts to cover sales. They may buy specific grades from merchants for forward delivery on their call and proceed immediately to fix the price. The price is the "on" or "off" for the class of cotton and the parity plus the price of the hedge contract the merchant buys.

Mills do not always wait until they receive orders to begin buying the new crop. They may wish to be sure to get the quality of cotton desired, so they get in the market by buying for forward delivery on their call at a fixed premium on a named month for the class delivered, the cotton to be shipped, say in October or December. But the privilege of calling the price may be given the seller under some circumstances. In either case there is no need for the buyer or the seller to enter immediately either the future or the spot market. If the merchant buys the cotton before the spinner has called it, he ordinarily sells a hedge against it. The cotton may be delivered to the mill and manufactured before the price is called if proper financial arrangements are made. The mill wishes to call the price on the cotton when it sells the goods to be manufactured from it. It hopes to keep goods sold ahead of manufacture, but this is not always possible.

The new crop of cotton begins to move in August. This adds the fourth and other factor in the market, the spot hedge sale, and the transition from the old to the new year is thus completed.

INFLUENCE OF SPOTS ON PRICE IN FUTURES MARKETS

The part of the price movement due to the action of any one of the four groups is difficult to measure separately. The influence most easily measured is the volume of spot cotton being put on the market. Almost all of that marketed through competitive channels is hedged. The merchant or shipper in the South who buys 100 bales of cotton sells 100 bales of futures on one of the exchanges. If the spinners are not in the market, the speculative buyers are called upon to buy the hedges offered. Moreover, if the mills are not inclined to buy, speculative sellers may come into the market with the hope of buying back their sales when the market has been sold off to the point where it tempts mills to buy. The attitude of the trade on this point is illustrated by such a quotation as the following:

> In view of the failure of the market to hold its recent advance and the willingness of planters and factors in the South to sell cotton freely at present prices, it looks like bullish influence of the Government crop report were discounted. We think the market apt to sell off under the weight of the crop movement.[30]

If the weather is good in the fall and the farmers are selling freely, it is generally believed in the trade that the volume of hedge selling required on the part of the merchants will temporarily drive the "basis" down, if not the price of futures. Few of the mills purchase their supply for the entire year during the harvest season. The volume of hedge sales, therefore, must sooner or later outweigh the purchases of hedges by mills.

According to the trade, the fall dip or the weight of hedge selling may be absorbed in the spot market without being shown in the future price level and is called a weakening of the basis. In September, 1923, for example, Middling spots were being bought from the farmers at even with December New York. By the latter part of October the same cotton was being bought at from 75 to 100 off

[30] Pearsall's Market Bulletin No. 6, Aug. 30, 1923.

December. In the late winter the basis was the highest of the cotton year. The future price in 1923–24 would indicate that there was no fall dip caused by hedging.

Figure 12 shows the fluctuations of the "basis" for the six-month period ended January 2, 1925.

It is not only impossible to tell how much of the buying and selling in the future market is due to speculation, but it is impossible to tell how the purchase and sale of spots are being handled. A mill may have bought cotton from a merchant on "basis" and fixed the price immediately. On the other hand, these "basis" contracts may be permitted to accumulate in large volume. When the price is called, the purchasing of hedges by merchants, which they sold as a protection, may drive futures up materially.

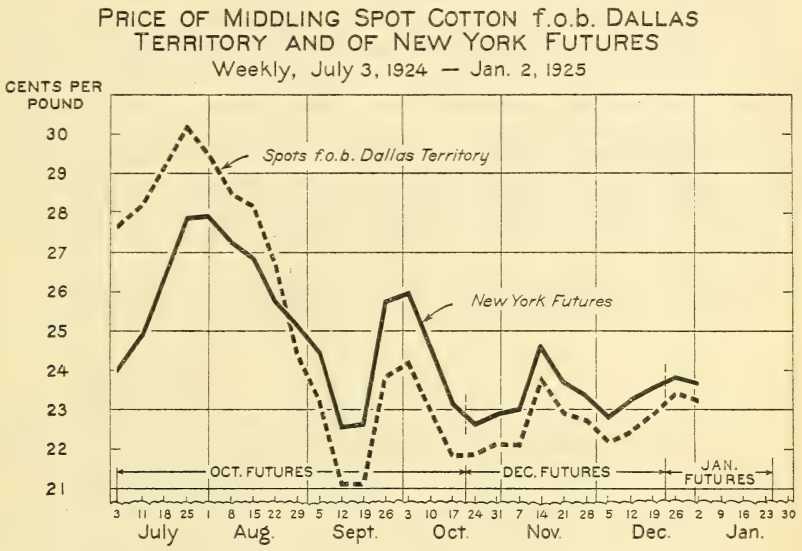

FIG. 12.—During the last half of 1924 the basis at Dallas fluctuated from 365 points on New York to 190 points off. Merchants in the Southwest had sold more new crop cotton for July and August shipment than was readily available because of the lateness of the crop. Spot cotton sold at a considerable premium over futures until the insistent demand had been satisfied. Prices used in the preparation of this graph are official quotations of Friday of each week. New York futures are those for delivery in nearest active month on that exchange

STRADDLE PARITIES

Prices in different futures markets may become such that a trader can buy in one and immediately sell in the other at a profit through the subsequent adjustment of the parities. The markets at such times are said to be out of line. Before the World War, the normal difference or parity between Liverpool and New York was about 100 American points in favor of Liverpool. Liverpool is higher than New York because the flow of American cotton is from American markets to European markets. The difference is due to such items as freight, rates of exchange, insurance, and labor. If the price difference between the markets widens or narrows appreciably without apparent changes in costs, a dealer on one of the exchanges will sell

the high market and buy the low. When the normal relationship is restored, he buys his contract sold in the high market and sells the one bought in the low. Such a transaction is known in the trade as a straddle. Likewise, New Orleans may get out of line with New York or Liverpool, and be brought back by a similar purchase and sale. There are firms which tend to make a specialty of the straddle business.

On account of difference in time, Liverpool opens about five hours earlier than New York. If the Liverpool market advances, say 10 "penny" points, equal to about 20 American points, New York is said to be due to open 20 points higher. Liverpool closes about one hour after New York opens. For the remainder of the day Liverpool is closed and any change in the New York market is independent of Liverpool. If the market goes down 20 points, Liverpool is said to be due down 20 American or 10 Liverpool points.

This type of parity difference can not be corrected by a straddle, without the straddle being short or long, as the case may be, from the time one market closes until the other opens. Even then there is little chance, for the first sale may be at an advance or a decline to more than meet the required change, and the would-be straddler may incur a double loss. If the difference persisted until New York opened, a straddle would be possible, though ordinarily New York would be bought by one party and Liverpool sold by another.[31]

TABLE 15.—*Prices of cotton at New York and Liverpool at different times of the day, illustrating the "straddle parities," September, 1924*

Date	Liverpool opening	Liverpool just previous to New York opening	New York opening	Liverpool and New York at 11 a. m., New York time		New York close
				Liverpool	New York	
1924	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
Sept. 2	26.05	26.24	24.61	26.22	24.66	24.40
3	28.06	28.12	24.30	28.20	24.45	24.53
4	28.16	28.10	24.48	28.20	24.48	24.40
5	25.67	25.80	24.40	25.99	24.55	24.44
8	25.82	25.89	24.65	25.29	24.02	23.58
9	24.97	24.93	23.75	24.86	23.58	23.52
10	24.27	24.18	23.50	23.80	23.28	22.78
11	23.95	24.25	22.80	24.16	22.91	23.08
12	24.22	24.35	23.25	24.30	23.13	22.55
15	23.06	23.24	22.30	22.98	22.05	21.83
16	21.95	22.32	21.80	22.53	22.08	21.64
17	22.82	22.91	21.90	22.96	21.85	22.25
18	23.32	23.45	22.40	23.32	22.25	22.25
19	22.73	22.92	22.32	23.17	22.50	22.62
22	23.61	23.70	22.45	23.53	22.45	22.16
23	22.70	22.72	22.16	23.85	23.15	23.87
24	22.84	24.66	23.72	23.98	23.72	23.50
25	23.70	23.66	23.40	24.45	24.10	24.43
26	25.28	25.14	24.75	25.68	24.90	25.75
29	25.95	25.98	25.45	26.52	25.72	25.80
30	26.63	27.08	26.25	26.43	25.61	25.50

Prices shown are the quotations as reported by the New York Cotton Exchange and the Liverpool Cotton Association for the dates indicated. Conversions of Liverpool prices made at daily rate of exchange as furnished by the Federal Reserve Board.

[31] For a discussion of straddle parities, see U. S. Dept. Agr. Service and Regulatory Announcements No. 9.

The result aimed at by the straddle may be accomplished by the moving of their hedges by the spot interests. An exporter who has cotton hedged in New York will transfer it to Liverpool, if it becomes high. His purchase of New York and sale of Liverpool raises the former and lowers the latter.

STRADDLE BETWEEN DIFFERENT DELIVERY MONTHS

Prices are quoted on contracts for delivery in each of the next following 11 months. The price is different for each month and the difference is variable, because each month is subject to slightly different sets of circumstances. If the speculator thinks the price of contracts for delivery in one month is too low compared with another, he sells the high and buys the low. If he thinks prices are too narrow he buys the high and sells the low.

Spot interests also tend to keep price movements for different months in line. A mill buyer may have bought December contracts in October, say at 25.10 cents, to cover an order for goods to be delivered in the spring. Before he buys the spot cotton to fill the order, he may find that December contracts have gone up 500 points, while March contracts have advanced only 400 points. He may thus sell his Decembers and buy Marches and make a profit. Thus, the spinners and merchants watch every opportunity to move their hedges forward or backward to improve their positions in the market. The speculators and the spot interests do a great deal of this kind of buying and selling, so that this type of transaction accounts for much of the buying and selling of future contracts on the exchanges.

COST OF PRODUCTION

Cost of production is one factor in determining the price of the supply on the market. It influences price through its anticipated effects on future supplies. Speculators tend somewhat to calculate the investment value of cotton on the relation of price to cost of production. Cost of production may also affect present supply by limiting the quantity harvested.[32] Yield is a factor affecting cost of production, but it is not so important with cotton as with some other commodities, because the big element in cost is picking; and picking costs vary directly and not inversely with supply.

CONVERSION OF PRICE OF SPOTS INTO PRICE OF FUTURES

THE TWO CONTRACTS

The price-making forces in the futures market operate somewhat differently from those in the spot markets. The transferability of the contract in the futures market makes it extremely liquid and prices adjust quickly to changing conditions. Spot-cotton prices are more subject to immediate conditions. The contracts are specific and not so easily transferred. The processes of settling forward delivery spot contracts may force spots out of line with futures in a rapidly moving market.

[32] For a more detailed discussion see COX, A. B., "COST OF PRODUCTION AND ITS RELATION TO PRICE." Cir. No. 267, Tex. A. and M. College.

The purpose of the passage of the cotton futures act in 1914 was, essentially, to make the price of contracts for future delivery register the true price level of cotton, and during the current month to make sure, accurate, and prompt, the liquidation of futures contracts with spot cotton. This section of the bulletin deals with the important problems involved in arriving at correct conversion ratios.

Provided the costs of receiving cotton are the same, the contract under normal conditions should be as valuable as spot cotton of the basis grade where several grades may be tendered against one contract. It is not enough merely to specify that certain grades must be accepted in fulfillment of contracts. Settlement must be made promptly at maturity. The obligation and privileges of buyer and seller must be specific. Expense of delivery must be reduced to a minimum. The inspection service and the classification of the cotton must be correct beyond reasonable question.

The futures contract is a one-class contract for price quotation purposes, but provides that, where settlement is made by the delivery of spot cotton, any one or more of the grades specified as deliverable may be tendered, provided the rules are followed in making price adjustments for grades above and below Middling, the basis grade. The seller does not agree to deliver a specific grade in the settlement of a future contract, as the risk would be too great. The large volume of contracts being sold would give every inducement to the speculator to corner the market for contracts of a particular grade.

CONVERSION OF SPOTS INTO "CONTRACT CLASS" EQUIVALENT

Since specific grade contracts have so far proven impractical in the sale of futures, one of the first problems to solve in devising an equitable contract, one that will maintain the proper parity between spots and futures, has been to discover a satisfactory way of arriving at the correct value of the various classes of spot cotton in terms of the basis grade. These adjustments are now made by means of price differentials established by commercial values.

As previously shown, the class of cotton is made up of four elements: Grade, color, staple, and character. Therefore, to carry out the idea perfectly, the differentials, the "ons" and "offs," should include correct values for all four of these factors. At present, price differentials are quoted officially for grade and color for the classes deliverable on contracts.

The universal standards for grades and colors of American upland cotton for which practical forms or copies are prepared and sold by the department are the following:

No. 1 or middling fair.
No. 2 or Strict Good Middling.
No. 3 or Good Middling.
No. 4 or Strict Middling.
No. 5 or Middling.
No. 6 or Strict Low Middling.
No. 7 or Low Middling.
No. 8 or Strict Good Ordinary.
No. 9 or Good Ordinary.

No. 3 Tinged, or Good Middling Yellow Tinged.
No. 4 Tinged, or Strict Middling Yellow Tinged.
No. 5 Tinged, or Middling Yellow Tinged.
No. 6 Tinged, or Strict Low Middling Yellow Tinged.
No. 7 Tinged, or Low Middling Yellow Tinged.

No. 3 Stained, or Good Middling Yellow Stained.
No. 4 Stained, or Strict Middling Yellow Stained.
No. 5 Stained, or Middling Yellow Stained.

No. 3 Blue Stained, or Good Middling Blue Stained.
No. 4 Blue Stained, or Strict Middling Blue Stained.
No. 5 Blue Stained, or Middling Blue Stained.

In addition to these there are the following 12 descriptive grades for which no practical forms are prepared:

No. 3 Gray, or Good Middling Gray.
No. 4 Gray, or Strict Middling Gray.
No. 5 Gray, or Middling Gray.

No. 3 Spotted, or Good Middling Spotted.
No. 4 Spotted, or Strict Middling Spotted.
No. 5 Spotted, or Middling Spotted.
No. 6 Spotted, or Strict Low Middling Spotted.
No. 7 Spotted, or Low Middling Spotted.

No. 2 Tinged, or Strict Good Middling Yellow Tinged.

No. 3 Light Stained, or Good Middling Light Yellow Stained.
No. 4 Light Stained, or Strict Middling Light Yellow Stained.
No. 5 Light Stained, or Middling Light Yellow Stained.

Figure 13 shows in graphic form the general plan of standardization.

GRADES AND COLORS OF THE UNIVERSAL STANDARDS FOR AMERICAN UPLAND COTTON

Blue Stained	*Gray*	Standards for grades of upland cotton White	*Spotted*	Yellow Tinged	*Light Stained*	Yellow Stained
		1 or M.F.				
		2 or S.G.M.		*2 T.*		
3B.	*3G.*	3 or G.M.	*3 Sp.*	3T.	*3 L.S.*	3S.
4B.	*4G.*	4 or S.M.	*4 Sp.*	4T.	*4 L.S.*	4S.
5B.	*5G.*	5 or M.	*5 Sp.*	5T.	*5 L.S.*	5S.
		6 or S.L.M.	*6 Sp.*	6T.		
		7 or L.M.	*7 Sp.*	7T.		
		8 or S.G.O.				
		9 or G.O.				

Symbols in heavy type denote grades and colors for which practical forms of the official cotton standards are prepared. For the grades indicated by symbols in italics no practical forms will be furnished. Gray cotton is between the White and the Blue Stained in color, Spotted between the White and the Yellow Tinged, and Light Stained between Yellow Tinged and Yellow Stained. The grades shown above the heavy hoizontal line are those which at this time (1926) are deliverable on future contracts made in accordance with section 5 of the United States cotton futures act. Those below the line are at this time untenderable on such contracts.

FIG. 13.—Grades and colors of the universal standards for American upland cotton

The grades above the heavy line on Figure 13 are deliverable on future contracts under the United States cotton futures act, and those below are not. No cotton is deliverable, however, unless it is at least seven-eighths inch in staple length. Whether more grades should be made deliverable and differentials included for staple length and character will be discussed later. Differentials are published by the United States Department of Agriculture for the other grades and colors and for the staple lengths when obtainable. No attempt has been made to quote differences for character.

Official standards have been established for American Egyptian cotton in five numerical grades numbered from 1 to 5, inclusive, and for various lengths of staple in American upland and American Egyptian cotton. By order of March 3, 1926, effective August 1, 1927, standards were promulgated for extra white cotton such as that grown in the southwest section of the United States.

METHODS OF ESTABLISHING COMMERCIAL DIFFERENCES

A system of commercial differences is now used in establishing differentials for value of different grades and colors of cotton deliverable on futures contracts. The method of application of the system is prescribed by the United States cotton futures act and the method in New York is different from that in New Orleans. The New York method employs what are known as average commercial differences. The number of spot sales of the various grades in the New York market were deemed insufficient for purposes of arriving at the true market values of different grades from day to day, and in order to put the market upon a system of commercial differences the cotton futures act provides for taking the average of the differences in certain southern spot markets designated by the Secretary of Agriculture. The differences in these spot markets are made by a price quotation committee in each exchange. It is contemplated that the committees will make up their differences on the basis of actual sales, bids, and offers in the respective markets.

A sale of every deliverable grade does not occur each day, and several days may pass without a sale, a bid, or an offer of a particular grade in a given market. Under such circumstances the committee faces the responsibility of quoting an arbitrarily fixed difference, or leaving the quotation for a grade without a sale unchanged. If the committee does the latter it may become greatly out of line with other designated markets. Where spot sales are not sufficient to establish differences in one of these markets, the rules promulgated by the Secretary of Agriculture under the authority of the cotton futures act for establishing such differences are as follows:

SEC. 6. PARAGRAPH 1. If on such given day there shall have been in such market both a sale of any higher grade and a sale of any lower grade, the average of the declines, or advances, or decline and advance, as the case may be, of the next higher grade and the next lower grade so sold shall be deducted from, or added to, as the case may be, the value, on the last preceding business day, of the grade the value of which on such given day is sought to be ascertained.

PAR. 2. If on such given day there shall have been in such market a sale of either a higher or a lower grade, but not sales of both, the decline or advance of the next higher or the next lower grade so sold shall be deducted from, or added to, as the case may be, the value on the last preceding business day of the grade the value of which on such given day is sought to be ascertained.

PAR. 3. If on such given day there shall have been in such market no sale of spot cotton of any grade, the value of each grade shall be deemed to be the same as its value therein on the last preceding business day, unless in the meantime there shall have been bona fide bids and offers, or sales of hedged cotton, or other sales of cotton, or changes in prices of future contracts made subject to the act, which in the usual course of business would clearly establish a rise or fall in the value of spot cotton in such market, in which case such rise or fall may be calculated and added to or deducted from the value on the preceding business day of cotton of all grades affected thereby.[33]

Each of the designated markets can not be expected to quote the same differences at all times, for they are widely separated, and supply and demand conditions in the different markets do not permit it. Rains and other unfavorable circumstances may suddenly cause an excess of low grades in one part of the Cotton Belt while in another the low grades may be scarce. Point of origin is an important index of character of cotton, and buyers frequently specify point of shipment. If the cotton is for export, the port is designated partly as an index of character and partly because it is necessary to engage freight room ahead. Thus, if merchants in a region sell forward very little low-grade cotton and the weather subsequently is such that these qualities are produced in abundance, the discounts are wide on low grades. If many sales of high grades have been made for forward shipment, merchants compete for them to fill orders and force high premiums at the same time that discounts for low grades increase. If there is an unusually high-grade crop in the territory of a market, the grades above Middling tend to lose their premiums and the lower grades to lose their discounts.

If a designated market should continue for very long to fail to reflect the value of spot cotton in its quotations, the Secretary of Agriculture may undesignate it. The law gives the Secretary the right also to compel those dealing in any market in the United States to turn over their books showing their purchases and sales, to assist him in determining whether the quotations represent the true commercial differences.

The differences which apply in the settlement of contracts in New Orleans are quoted by the quotation committee of the exchange. They are based on transactions and offers to buy and to sell in that market alone. This method is simple and inexpensive but it has its limitations in actual practice. Even in the New Orleans market the sales are not always sufficiently numerous to furnish a satisfactory basis for establishing differences.

The problem of arriving at true commercial differences for the various grades is made more difficult by the methods of trading in spot cotton. Much cotton is bought and sold on types which do not correspond to the standards. Sales may be for immediate or forward delivery. If for forward delivery, the differences agreed upon will probably be different from what they would be if immediate delivery were called for. The transaction may be in terms of an average price for gin-run cotton. The trade may be in terms of bale units or of even-running lots of 100 bales. In the fall, most of the transactions are purchases from farmers or local buyers, often

[33] U. S. Dept. of Agr. Service and Regulatory Announcement No. 91 (Agr. Economics), Regulations of the Secretary of Agriculture under the United States cotton futures act, p. 19.

in unclassed lots. In the winter and spring these are small. The bulk of transactions in winter and spring are sales of even-running cotton by merchants to mills.

The following resolutions adopted by representatives of 10 spot-cotton markets, to obtain correct differences, show the typical machinery used to collect differences and the plan for obtaining the necessary facts:

(1) *Resolved,* That the responsibility for quoting different grades to Washington rests with the quotation committee.

(2) *Its composition.*—Committee of five composed of two buyers and two sellers, appointed by the president for two months, one buyer and one seller to be replaced every 30 days; also a chairman, appointed by the president, who shall serve for 30 days and be alternately a buyer and a seller.

New Orleans reserves its present system.

(3) *Method of obtaining facts.*—Buyers and sellers report daily to superintendent of exchange all purchases and sales with prices of each grade. If purchase or sale is of average grade buyer and seller must report to the best of his knowledge and belief the value of each grade. This information furnished the superintendent is strictly confidential and his duty shall be to report to the quotation committee an average price of various grades bought and sold, also the total number of bales traded in. The committee shall have the discretion to decide whether the total transactions are too small to base quotations on and they shall also have the power, if the quotations seem to be at variance with the actual transactions, to demand from the superintendent that he furnish them with a list of the transactions from which his figures were derived. If the transactions are so small as to make, in the opinion of the committee, a purely nominal market, the committee shall request the superintendent to secure bid and ask price on each grade from the various buyers and sellers, and the superintendent shall figure the average price of each grade from the average bid and ask price on 50 bales or more. It is understood that when any sales of spot cotton are made and such, in the opinion of the spot committee, are made for the purpose of influencing (if possible) the spot quotations; or, any sales which do not represent true market value—then such sales are not to be considered by the Committee in making spot quotations.

When a basis trade is made the buyer and seller must agree, for the purpose of getting the average quotations only, upon the approximate amount of each grade to be contained in the same.

In addition, an official of the Bureau of Agriculture Economics visits the spot markets from time to time for the purpose of checking the reported differences, to see that they are the true and actual differences obtaining in bona fide transactions.

Figure 14 shows the differences for grade and color in the New Orleans market from September 1, 1923 to January 1, 1924.

These systems of arriving at differences have not been entirely satisfactory, but they are subject to improvement and no other system gives promise of being more satisfactory. The difficulties lie chiefly in administration. The problems of arriving at true commercial differences for different grades increase greatly as the number and size of transactions decrease. Cotton with extreme qualities, whether of grade, color, staple length, or character, tends to be a specialty. An attempt to quote commercial differences for such classes for delivery on future contracts would tend to depress the value of such contracts whether they were overvalued or undervalued. The very fact that they were deliverable would increase the buyers' risks. If they were overvalued the price of contracts would be lowered accordingly. To prevent the misalignment of spots and futures, it is necessary to have only those grades deliverable which are readily

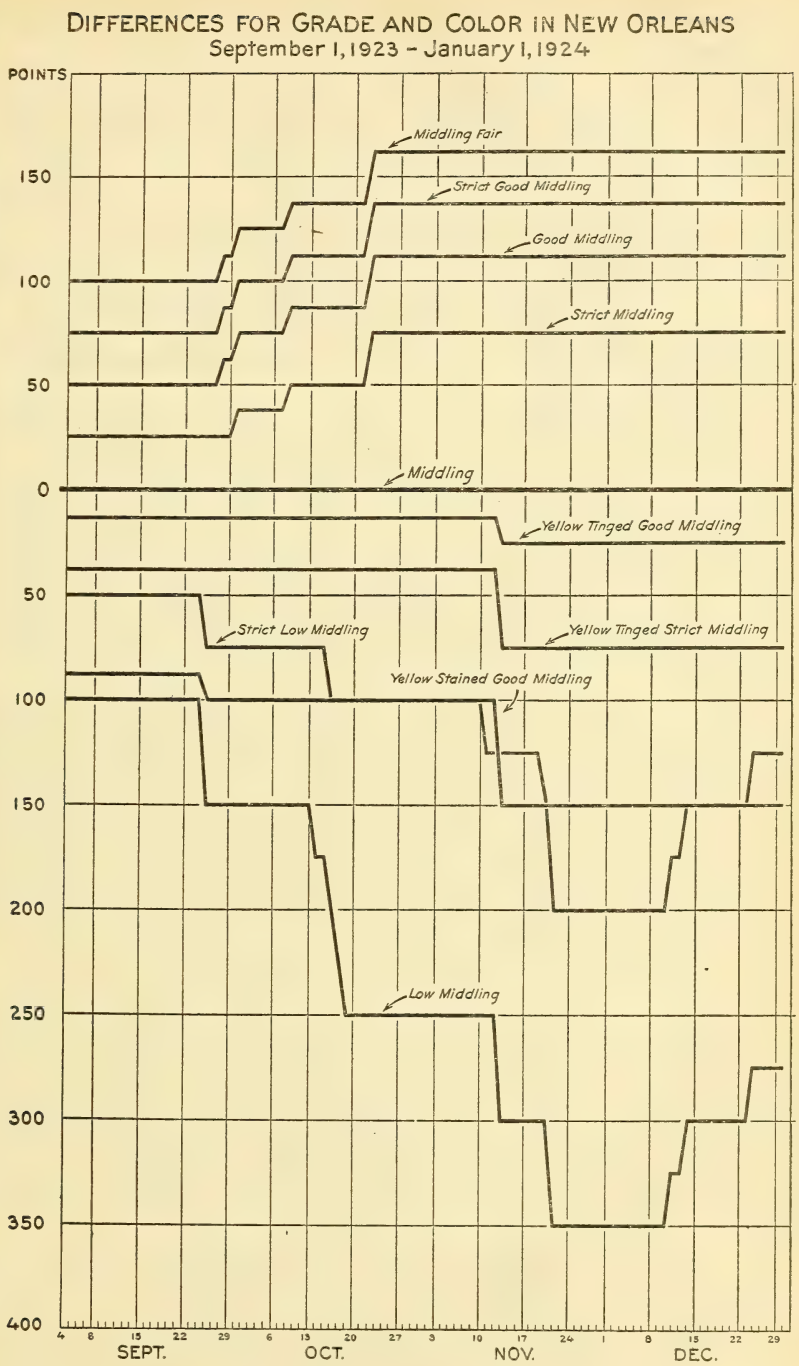

FIG. 14.—Changes in the differences for grade and color occur from time to time and are sometimes striking. The risks incidental to these changes in relative values are borne by the dealers in spot cotton. The differences are shown in points, or hundredths of a cent, above or below the price of Middling

merchantable and for which correct differences can most nearly be obtained.

The system of commercial differences as provided for under the cotton futures act, which has always been used by New Orleans, forces the risk due to changes in relative value of different grades on the dealers in spot cotton rather than on the dealers in contracts for future delivery. Thus the cotton merchant who buys Low Middling in September at 50 "off," which is the commercial difference at that time, and hedges it in December, may find it 500 "off" at the time of delivery. On the other hand, should the merchant sell a mill Low Middling at 50 "off" and buy a contract to cover on that basis, and the difference widens to 500, he may make an extra profit of 450 points either in the resale of his futures or in the purchase of the spot cotton. Trading in grades better than Middling present similar problems.

A system of fixed differences was used in the settlement of New York contracts prior to the enactment of the cotton futures act. The differences were, in fact, forecasted commercial differences which were to apply for a stated length of time. They were made in September to apply to the settlement of contracts until November, when it was thought that the grade of the crop was fairly well established. At that time the differences were fixed to apply until the next September. The system was devised to avoid the mistakes and difficulties of changing differences each day. Theoretically it had a number of advantages. It was an attempt to throw the risk of changes in the value of different grades on the speculator. A buyer of spot cotton who hedges it within the prevailing difference period had as near a perfect hedge as is possible to obtain. If he bought low grades in September at, say, 50 "off," and rains in October drove the commercial difference to 100 "off," he would not lose the 50 points on the low grades, as is the case under the present system, because he could deliver them against contract. This method of fixing differences tended to force the delivery on contract of cotton for which there was no commercial demand; for the overpriced grades would tend to be delivered against contracts.

Fixed differences were legislated out of existence in the United States in 1914, because of their effect on the price-making function of the exchange. The least-desired cotton deliverable in the market tended to set the price of contracts. If there was an active demand, spots would not be depressed to the same extent as futures, but demand was not always brisk. The great majority of buyers, and especially farmers, were unable to understand the complicated price relationship, and thus were unable to make proper allowance for depression due to the overvaluation of certain deliverable grades. This multiplied the chances of buying cotton for less than its true value.

The extent of the influence of fixed difference on the price of spot cotton depended on general market conditions and the nature of the spot contract. Spot cotton for immediate delivery or at a fixed price for forward delivery was likely to sell for about its commercial value. On the other hand, if a merchant sold for forward delivery based on some future month, and protected himself by buying a future contract as a protection until he could buy the cotton, he had

to have a wider margin; for before he bought the cotton the contract might be depreciated because certain grades became overvalued. On the other hand, the merchant who carried a stock of hedged cotton through the period of depreciation of the contract would make a net profit in buying back his hedges. This discouraged forward sales and tended to throw the full weight of the crop on the market during the harvest season and to shift risks of difference changes on the farmer.

The effect of fixed differences on farmers' prices depended on the season and general market conditions. The worst kind of condition prevailed when differences were made rather narrow and weather conditions subsequently made commercial differences very wide, and in addition the mill demand for cotton was very weak and most of the cotton had to be hedged and carried by merchants. The future price was depressed because of the low grades. The merchant wished to buy his cotton on a deliverable basis, so the price he paid the farmer tended to be pulled down with the value of contracts. To the extent that he bought high grades above the fixed differences, the merchant took the risk. It was a definite risk, however, based on his estimate of commercial values, and to some this was more welcome than the unknown risks involved in the changes incident to the system of commercial differences now in use.

A set of differences based essentially on spinning values has been proposed. The advocates of this plan believe it possible through scientific spinning tests to establish differences once for all and thus to eliminate a most vexing problem. Grades are sometimes blended to make intermediate grades, but the range of substitution is very narrow. There is no questioning the fact that spinning values have a place in establishing commercial values, but the percentage of yarn turned out is only one factor in determining value. The others vary from mill to mill and from time to time, depending on a variety of factors. The layout of machinery, the placing and training of the laborers, the establishment of branded goods, and other influences are price-making factors independent of yarn outturn, and are governed by policies partially independent of the laws of supply and demand for individual grades.

RISKS IN PRICE INSURANCE

Three risks are involved in cotton price insurance. One is the risk due to changes in the price level, another is the risk due to changes in the relative value of different classes of cotton, and the third is the risk due to the change in the "basis" or parity between spots and futures. No relationship between spots and futures has yet been devised whereby the three may be written into one contract and shifted to the speculators dealing in contracts for future delivery. In so far as the risks of general price changes are concerned, they may be shifted whether it be under a system of fixed or commercial differences.

No way has yet been devised to carry the risk of changing differences in the same contract which carries changes in the general price level. The system of fixed differences was an attempt to do it, but those differences got out of line with commercial differences and, to the extent that they did, the merchant was subject to loss. Under

some conditions he was able to shift part of it to the growers by safe buying; and under others to mills, where they were extremely anxious for cotton; and under others, to speculative buyers of contracts. In the case of commercial differences there is no attempt on the part of the speculator to assume risks of changes in the differentials for grade.

The basis of parity risk is a merchant's risk and no way has been devised to insure against it. The system of forward delivery sales on call and the fluctuations in the size of the crop are the factors most important in determining the parity risks.

THE BASIS

In cotton-marketing literature the expressions "on" and "off" do not always refer to differences in value for grade and staple. A mill, for example, may buy Middling 7/8-inch cotton 100 points "on" December in December for delivery in December. This difference between the price of spots and of futures evidently does not refer to "on" for grade and staple, for the grade is Middling and there is no premium for 7/8-inch staple. Although such a difference is expressed in terms of "ons" and "offs," it is referred to at the present time by the trade as the "basis." The word when used in this sense means the price relationship between the named class in a named or implied market and the price of contracts for delivery in the active month of a named future market. The "basis" on Strict Middling 1 1/8 inches may be quoted as 500 on New York landed New England points.

"Basis" is a comparatively new word in cotton-marketing literature, and is rather loosely used. In fact, it is used in three different senses or, more commonly, it combines three different meanings: (1) It may refer to the widening or narrowing of the differences "on" and "off" on one or more of the qualities determining class. (2) It may be used to designate the relative values of spots and futures or what is more correctly called the "parity" between spots and futures. (3) It may be used in its original sense, to designate the settlement grade in a future contract, the grade from which the "ons" and "offs" are reckoned. The future contract in the United States has been so thoroughly standardized on Middling White short cotton that it is known as "the basis Middling contract," and it is often not necessary to use the word "basis" except to distinguish the future from a spot sale.

The significance of differences, "on" and "off," for grade, color, and staple length, in price making has, it is hoped, been sufficiently explained. The use of "basis," meaning the settlement grade, is so well understood that it needs no further elaboration here. The remaining problem, then, is to explain "basis" when used in the sense of parity between spots and futures.

Parity means the difference between any two prices. The difference between spot prices and active month futures is the "basis." It is generally known in the trade that at times spots are worth more than futures, sometimes they are even, and at other times futures may be higher than spots. The purpose of the following discussion is to explain the changes in the basis—that is to say, the changes in parity between spots and futures. The parity is determined by

demand and supply conditions in the futures market on one side and in the spot market on the other.

Spots are likely to sell at a premium in a period when the carry-over is small and the crop short, on the one side, and when there is a brisk mill demand on the other. That condition was well illustrated on September 15, 1923, when New Orleans October futures were quoted at 27.12 and spots at 27.50 in the same market. This condition may be forced because the merchants sell for forward delivery at specified dates specific grades in large quantities and the crop turns out to be shorter than expected, or for any reason moves to market slowly.

CURRENT OR NEAR MONTH FUTURES MAY BE HIGHER THAN DISTANT MONTHS

Future contracts for delivery in different months have different prices at any given time. When the distant months are at a discount, the problems of the cotton merchant become more difficult, especially if he has sold on call or is accumulating a stock of hedged cotton. Spot prices are based on the near month and the merchant doing this kind of business must hedge in a distant month or run the risk of taking his hedge out of the near month as it matures and transferring it forward. The latter method may involve more loss than the former.

A large part of the cotton crop has to be carried for several months after harvest. It is contended that because of this fact the distant months should normally be at a premium to pay the necessary carrying charges.

Several reasons are advanced in explanation of the frequent occurrence of discounts on the distant months: (1) A current short crop is most often stressed, because it causes a scramble for cotton by those who have sold for forward shipment. Each is ignorant of how much others sell, so together they may oversell the supply. Covering of these short sales raises the price abnormally on near positions, thus leaving distant months relatively lower. (2) The manner of placing the hedge has an important influence. The spinners are inclined to operate on a hand-to-mouth policy in fixing the price on raw cotton, especially if the advance in the price has been strong. On the other hand, they may buy heavily of call cotton on basis, to be sure to get the cotton they wish. Much of the cotton bought on call is hedged in a distant month. Thus, while there is a strong demand for spot cotton by merchants in anticipation of future needs, the weight of the crop in hedges may be placed in the forward months rather than against the immediate demand. (3) These discounts in the distant months may be due partly to uncertain business conditions. (4) A declining price level may cause such discounts. (5) In the spring months, following a high-price crop, the prospects of the new crop may have an important influence in causing discounts in the later months of the year.

Figure 15 shows the average price of New York cotton futures quoted in December for delivery in December and in May, for the crop years 1915–16 to 1923–24.

In passing out of the boom period resulting from the World War, when prices reached a high level, the futures market tended to stay well under spots. On August 7, 1920, August spots were quoted at

36.75 for Middling at New Orleans and August futures at 32.40. At the same time contracts for delivery in May of 1921 were quoted at 28.50. On September 17, 1920, New Orleans spots were quoted at 28.00, and September futures at 27.51. On October 8, 1920, New Orleans spots were quoted at 22.25, and October futures were 22.00. If spots are sold higher than usual in relation to futures the basis is said to be high; if they are sold for less, the basis is low or weak.

Merchants want a "weak" or "easy" basis in the fall when they are buying and hedging their cotton. After their cotton is bought, any strengthening of the basis means a profit. The basis or parity usually "improves," that is, goes higher on a declining market. A

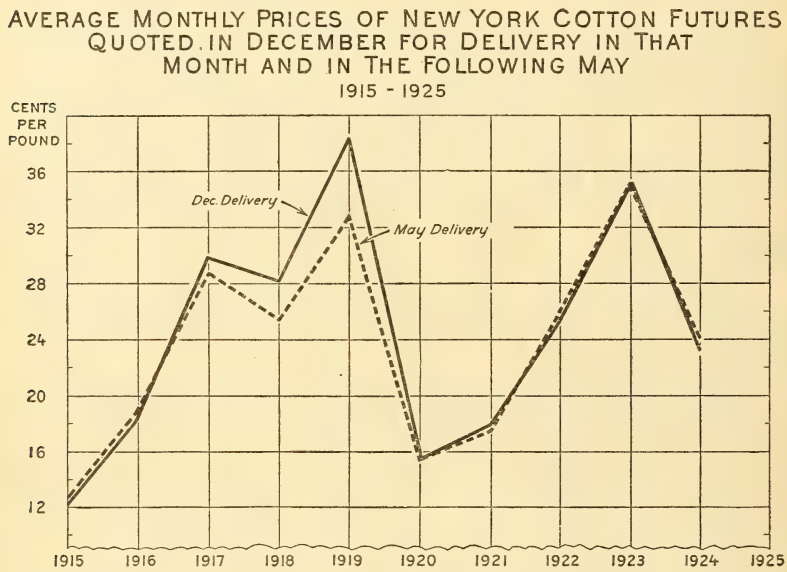

FIG. 15.—This chart shows the discount of distant months as compared with the near active month. Current futures may be higher than those of distant months in spite of carrying costs. The prices indicated are the averages of the official daily closing quotations of the New York Cotton Exchange for each business day in December on contracts for delivery in that month and in the following May

merchant carrying a large stock of hedged cotton profits by such declines in the price.

The relationship between the average monthly price of Middling spot cotton in 10 designated markets and New York futures for the next active month is shown in Figure 16.

The price of spot cotton may be below futures. The two main reasons are the cost of carrying the actual cotton as compared with a contract and the price risk of doing so. (Sometimes the current month futures will be higher than spots in the central markets because of a squeeze. Such abnormal conditions are not taken into account here. The price risk lies in the changes in differentials between Middling and other classes. Spots are normally lower than futures when there are heavy sales of spots for which there is no immediate commercial demand and the cotton has to be hedged and carried by the buyers. Moreover, under such conditions

there are usually premiums for the distant months. In October, 1911, for example, cotton for future delivery in New Orleans was quoted as follows: December, 9.38; January, 9.39; March, 9.50; May, 9.64; and July, 9.71. There is no economic reason why spot cotton of deliverable grade and quality should be lower than futures to the extent of more than the cost of carrying the cotton to the delivery month, cost of delivering it, and in addition, the possible losses which might occur because of changes in the grade differences.

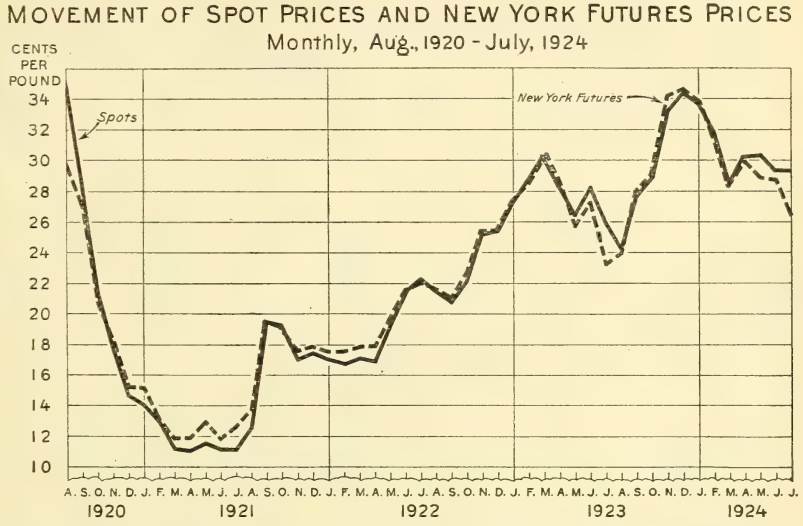

FIG. 16.—The relation between the prices of spot cotton and future contracts is constantly changing, as illustrated by the movement of average monthly prices of Middling in 10 designated spot markets from August, 1920, to July, 1924, and the corresponding prices of New York futures for the nearest active month

THE SQUEEZE

Occasionally futures or spots are forced out of line to an abnormal degree in the current month, as a result of what is known as a squeeze. In any current month there are speculators who have sold short and others who have bought long. In addition, there may be cotton merchants who are long on spots and short of contracts as hedges. There may be some spinners who have bought long to cover sales of goods, but ordinarily very few permit themselves to get into such a position, because they can not afford to take delivery against contracts to fill their mill requirements. What happens, therefore, depends largely upon who the traders are and what technical position they occupy. The longs may ask for delivery on their contracts, and probably will if there is little cotton available and there is a broad outlet for spots. Such a demand may force the shorts to settle at substantial premiums. The shippers of unsold cotton in the South may be caught in the squeeze and forced to pay a heavy penalty in taking their hedges out of the current month and placing them in a distant one.

Corners are similar to squeezes except that they are conducted on a larger scale and are more intense. That is, a corner is a squeeze in every position; or conversely, a squeeze is a corner in one month.

SUPPLY OF CERTIFICATED COTTON

The supply of certificated cotton in the futures markets has an important bearing on the relation of the price of futures and the price of spots in the big spot markets. When the stock of certificated cotton is low, the price of current futures tends to be higher than spots; and if the stock is heavy, futures may be lower.

TABLE 16.—*Certificated stocks of cotton, the price of contracts for future delivery, and the price of spots, by months, July, 1923–September, 1924*

Year and month	Certificated stocks as of the first of the month		Price of cotton for future delivery		Average price of Middling spot cotton
	New York	New Orleans	New York	New Orleans	
1923	*Bales*	*Bales*	*Cents per pound*	*Cents per pound*	*Cents per pound*
July	78,029	4,208	26.46	25.92	25.87
August	24,058	9,420	23.93	23.33	24.22
September	2,483	7,652	28.07	27.32	27.67
October	350	6,627	29.03	28.37	28.90
November	14.565	8,887	34.19	33.77	33.29
December	32.816	16,910	35.19	34.31	34.39
1924					
January	163,469	21,502	33.65	33.77	33.69
February	153,926	17,744	31.56	31.78	31.74
March	148,849	19,419	28.35	29.01	28.54
April	127,672	22,920	29.98	30.10	30.23
May	72,903	7,958	30.82	30.51	30.33
June	60,574	24,164	28.76	28.10	29.38
July	45,091	16,769	30.65	27.68	29.32
August	78,387	13,896	26.52	25.73	27.16
September	40,294	3,907	23.60	22.74	22.74

Figures for the certificated stocks are those reported daily to the Department of Agriculture. The New York and New Orleans futures prices are the averages for the nearest active month. The price of Middling spot cotton is the average for the 10 designated spot markets.

During the four months between July, 1923, and September, 1924, when the stocks of certificated cotton in New York were more than 100,000 bales, the price of New York futures averaged 16 points below the price of Middling spot cotton in the 10 designated markets. On the other hand, the average price of New York futures was 36 points above the price in the 10 markets during the 11 months when the stocks of certificated cotton in New York were less than 100,000 bales.

The prices of future contracts in New Orleans average lower than the prices in New York. The stocks of certificated cotton do not fluctuate so widely and on the average are not nearly so large. During the eight months when the New Orleans certificated stock was more than 10,000 bales, the price of New Orleans futures averaged 50 points below the average price of Middling in the 10 markets. When the certificated stocks averaged less than 10,000 bales, the price averaged 18 points below the average in the 10 markets.

The quality of the certificated stock is an important factor in determining the relative price of futures and spot cotton. When there are large premiums for cotton above seven-eighth inch and there is a large supply of seven-eighth inch of poor character, the shorter lengths tend to be delivered on contract and thus to depress the price

of futures. At other times when there is a crop of high quality with narrow premiums, inch cotton or even better may be delivered on contract. At such times the contract is relatively more valuable than when the stocks are poor and differences for quality are wide.

The price of cotton is determined in markets essentially international in trading facilities, and is based on world demand and supply conditions. In order properly to weigh the cotton-market situation, it is desirable, therefore, to know the fundamental conditions affecting the world's demand for cotton goods and the factors affecting the sources of supply of raw cotton. The American production is the dominant factor on the supply side, especially for cotton of medium staple length. The production of this length cotton in the United States constitutes over half the world's supply of all cotton. Over half the American crop is exported, so that foreign demand is relatively much more important in determining prices than are foreign-grown supplies.

Cotton markets are highly specialized as to their functions, and are closely interrelated. The methods of trading in cotton and of price making have given the futures markets a very important position in the market structure as a whole. Trading in the futures markets is the most highly standardized. The contract is the most liquid, and the price in the futures markets tends to respond most quickly to the changing opinions of traders as to world demand and supply conditions. There is, however, a very close relationship between the price of futures and of spot cotton. This is due to the system of buying and selling in the spot markets in terms of points "on" or "off" futures, and to the method of liquidating futures contracts by the delivery of spot cotton. Much of the business in the spot markets is done on "basis" for forward delivery, the price to be that of contracts for future delivery in a designated month in a named market. Any unforeseen or artificial changes which affect this basic relationship is detrimental to efficiency in cotton marketing.

SUMMARY

An understanding of cotton prices involves a study of the fundamental factors of demand and supply and of the machinery built up to bring these factors into trading relations. Since much of each year's crop is placed long before it is grown, it is possible to anticipate the needs of spinners with a fair degree of accuracy. Pertinent facts as to probable demand should be made available to growers, so that they may more closely coordinate the volume and the quality of their production to the wishes of the market.

The values of many kinds of cotton goods, such as ducks, denims, sheetings, and the cheaper clothing, are determined largely by the value of raw cotton, and the price is an important factor in determining the amount taken. The amount of cotton taken by industry, however, is determined by the state of industry (notably automobile manufacturing, the building trades, and certain milling trades) rather than by the price of cotton.

In measuring the world demand for raw cotton, statistics concerning activity of spinning spindles in the various countries are important indicators, though "counts" of yarn are also to be con-

sidered in determining consumption per spindle. Mill consumption is an especially important indicator, but the real measure of demand is not found in conditions in the manufacturing country, but rather in conditions in the country that ultimately consumes the cotton goods. Cloth sales of mills, commission merchants, and jobbers are other important indicators of demand.

The world's supply of cotton for price-making purposes consists of an aggregate made up from three crops: This year's crop, the carryover from the previous year (these two constituting cotton already in existence), and the anticipated amount of the next crop. Crop statistics are available in several forms, the most significant figures being (1) the number of 500-pound bales grown, (2) the counted gin bales, and (3) the number of bales entering certain designated markets, or the commercial crop.

The thousands of markets handling American cotton are classified in different ways for different purposes. The various classifications point out peculiar characteristics of the markets and are valuable in the connection in which used. For the purposes of this discussion cotton markets are classified from the standpoint of predominant economic services performed into: (1) Spinners' markets, (2) futures markets, (3) centralizing spot markets, and (4) local or primary markets.

Spinners' markets are located in or near mill centers and exist primarily to supply spinners' needs. Foreign spinners customarily have a market in the local mill town, but buy also through a broker in the import market. The personnel, methods of selling, and rules governing transactions in the various spinners' markets, domestic and foreign, vary greatly, owing to the wide divergence in local needs and in the services performed. Price making in a spinners' market is largely concerned with bargaining on the "basis," or parity between spots and futures, prices in American markets being made in terms of New York or New Orleans futures.

A cotton futures market is a place where cotton is bought and sold for future delivery on a rigidly standardized contract. The futures markets at New York, New Orleans, and Chicago in this country and at Liverpool, Bremen, Havre, Bombay, and Alexandria abroad are dealers in cotton for future delivery, or "futures." The futures market is essentially a price-making organization, and every discernable influence affecting supply or demand is reflected in this market. An adequate understanding of cotton marketing necessitates familiarity with the organization and methods of the futures exchanges.

The centralizing, or spot, markets are the great reservoirs of spot cotton. Nearly every bale of cotton grown passes through one of these markets, and dealers and merchants draw upon them directly in supplying the needs of the mills. These markets are scattered throughout the Cotton Belt and function as assembling points and gateways through which large volumes of cotton move toward domestic and foreign mills. An important service rendered by the spot market is the classing and assembling of cotton in even-running lots as required by spinners.

The primary market, or farmers' market, is the place where the grower meets the buyer. Quite often this market is a wagon market

near the public square, where the farmer offers his cotton for sale to the highest bidder as soon as it has been ginned. The facilities in this local market differ widely, and the buyers and sellers usually operate quite independently. The two main problems of the primary market grow out of the limited volume of business and inability of the farmer to know the comparative value of his product.

Price making in the futures market operates through the purchase of cotton for consumption and for speculation. On the supply side, it operates through the sale of cotton for immediate delivery or delivery in a named future month. Prices rise or fall with changes in the minds of traders in cotton as to the relationship between demand and supply.

The conversion of the price of spots into the price of futures has necessitated the devising of a way to arrive at the value of the various classes of spot cotton in terms of the basis grade. These adjustments are now made by means of price differentials established by commercial values. The method used in establishing differentials for value of different grades and colors of cotton deliverable on futures contracts in America is prescribed by the United States cotton futures act and the regulations thereunder. Occasionally futures or spots are forced out of line to an abnormal degree in the current month as a result of what is known as a "squeeze." The relationship between the price of futures and of spots is very close, because of the system of buying and selling in the sopt markets in terms of points "on" or "off" futures, and to the method of liquidating future contracts by the delivery of spot cotton. Since much of the business in the spot markets is done on "basis" for forward delivery, marked changes in the basic relationship disturb the normal course of cotton marketing.

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November 12, 1926

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